The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. LXIX, No. 20 Chicago, Illinois November 17, 1917

PNEUMONIA IN EARLY INFANCY AND IN CHILDHOOD

ITS MORTALITY AND TREATMENT, WITH SPECIAL REFERENCE TO THE USE OF ALCOHOL *

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Innumerable papers and discussions on pneumonia in infancy and childhood have been published within recent years. Most of these are based on insufficient data, as the number of cases subjected to a critical analysis are not many, and the recorded observations as to management and diagnosis do not emanate from one source. Hospital statistics, as a rule, are collated from the services of a number of attending physicians. The histories and diagnoses must, in such cases, vary widely as to points of view, and thus will militate against the reliability of the ultimate conclusions.

Many authors err primarily by assuming that the anatomic nature of pneumonia, whether bronchopneumonia or lobar pneumonia, can be determined definitely at the bedside. This is at times almost impossible, and though the age limitations of bronchopneumonia as compared with lobar pneumonia are well recognized, this is not so important to the practitioner as are other considerations that will be emphasized in this paper.

I have suggested that the study of a large series of cases of pneumonia occurring in infants and children, and extending over a considerable number of years, will give more accurate information as to frequency and mortality than the study of a limited number of cases over a period of one, two or even five years. The severity of the disease, the morbidity and the mortality, varies from year to year. In some years, the disease will be comparatively mild; in others, it will be severe. An average taken over a number of years will give more extensive and exact information as to changing modes of practice and the various forms of the disease one is likely to encounter. The fallacy of attaching undue importance to brilliant outcomes, in cases in which methods long obsolete are employed, as compared to the results in cases in which modern treatment is used, will also be shown by such a study. I need refer only to the fresh air treatment of today and to the digitalis and alcohol treatment of yesterday in order to emphasize what Niemeyer said of pneumonia years ago, namely, that the true course of pneumonia could be learned only from the cases of practitioners who, owing to their ineffective dosages of drugs, follow what practically amounts to *laissez-faire* treatment. Under normal conditions, pneumonia at any age is a self-limited disease of definite duration, and, barring complications, it has a definite tendency to recovery. If patients lose in their fight against the disease, it is because of constitutional limitations of the organism attacked and the utter inability of some patients to protect themselves against complications that exhaust their vitality and lead to fatal consequences.

The age of incidence is of the greatest importance. I have divided the first year of life into three periods, from birth to 3 months, from 3 to 6 months, and from 6 to 12 months. The age consideration is certainly more practical from a clinical standpoint than the anatomic nature of the pneumonia. A mere statistical summary of cases of bronchopneumonia throws very little light on a given case, as it does not take into sufficient account the elements of constitutional weakness in a patient and the difficulties the practitioner encounters while endeavoring by his treatment to build up a successful resistance to the disease. In some infants the pneumonia or bronchopneumonia seems to spread over the whole of both lungs. In others, the disease is sufficiently limited to justify the assumption that the inherent resistance of the organism will suffice not only to combat the disease, but also to protect itself against a spread of the lesion in the lung. This is an exceedingly important aspect of the disease, and it explains why in certain cases of young infants, no matter what is done, the disease gains headway, and the patient succumbs because of this and not through inappropriate treatment. In older children, on the other hand, the structure of the lung, as Delafield has explained, tends, in a measure, to protect the patient against a spread of the lesion. As a rule, a lobar process is limited in its attack to a definite portion of the lung, in which case patients show greater constitutional resistance to the progress of the lesion, and there is a tendency to recovery no matter what treatment is employed. If the foregoing underlying principles in regard to pneumonia in infancy and childhood are understood, all cases can be more justly analyzed and the patient may be approached with the conviction that the ultimate outcome of all pneumonia depends mainly on the vitality of the patient and his powers of resistance.

CLASSIFICATION OF CASES

It is often said that the results are far better in private than in hospital practice. If this is true, then it is an indictment against our hospital system, and is a good weapon to use against it. But it is not true; indeed, it is far from the truth. I prefer the well conducted hospital ward, free from hospitalism—its light, air, sunshine, modern methods of nursing—to the dirty, dingy, stuffy tenement, or to the harassing and annoying conditions of better private practice. The results in hospitals certainly should be as good as if not better than in private practice. I think statistics will bear me out in the statement that the clinical course of pneumonia is better in hospitals than elsewhere. The careful nursing and the freedom from noise and worry certainly tend to better results. Even the public recognizes this fact.

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The hospital physician says that if he could get the patient earlier he could do better. Most patients come to the hospital either in the beginning of the period of onset or when this period is well advanced. Some patients come in only a day before the crisis occurs, and a very few patients are brought in moribund. The argument of the hospital that the patients should be brought in earlier does not apply, therefore, to other than the moribund patients, and even as regards them, I am not convinced that bringing them to the hospital earlier would have saved them. With pneumonia it is not as with diphtheria, for in the latter early treatment saves. In pneumonia we have no specific, the early application of which would save. Therefore, our inadequate methods and not the place of treatment are to blame for our failures. Of course, some exceptions may be urged; but on analysis they will be found to be only exceptions. Very few children with pneumonia are exposed to the same dangers as some adults who walk around for days with the disease in progress, and then come to the hospital moribund. Most children are treated in their homes from the start. Their transfer to the hospital is only a change of place and cannot be used as a weapon for or against hospitals. The hospital statistics which I will present depict in a true and faithful manner the course of pneumonia in infancy and childhood. Though they are all hospital statistics, they are drawn from one service (my own), and the patients were all treated under a uniform system of therapy and nursing in a hospital of the modern type. They depict results that should obtain in private practice, and from my experience I am inclined to believe that they depict the true course of the disease under modern conditions.

I have divided my cases into two groups, Series A, comprising 1,351 cases occurring from 1906 to 1914, and Series B, in which are included all cases occurring during 1914 to 1915 and 1915 to 1916, namely, 391. The reason for this division will be given later.

I have first considered the mortality from the standpoint of age, and, in the case of infants, the incidence of fatality among the breast fed and the bottle fed, irrespective of the mode of treatment. Secondly, I have considered the influence of treatment, including nursing, and the conservation of the strength of the patient. In Series A there were 248 deaths, a mortality of 18.3 per cent. The mortality varied in different epidemics or years from 14.6 per cent. to 25.7 per cent. The percentage of mortality was increased according as the number of infants or children of younger age predominated. Comparing the mortality of the different ages in the total number of cases as shown in Table 1, it will be seen that the greatest mortality occurred below the age of 1 year and that the mortality decreased steadily after the fourth year. Thus, below 1 year of age, 334 cases showed a mortality of 35 per cent.; after the fourth year, the mortality ranged from 3.8 per cent. to 10.7 per cent., and between the seventh and eighth years, it was 3.8 per cent. These were the favorable years, when most cases were of the frank lobar type. Quite favorable was a group of cases after the tenth year, forty-six cases showing a mortality of 4.3 per cent. Omitting the first year, the record from the second to the tenth year and over was 1,017 cases, with a mortality of 131, or 12.8 per cent., certainly a very favorable showing.

All of the cases in infant[illegible]below the age of 1 year, or at least a large majority of them, are of the bronchopneumonic type. I have made an analysis of these cases to show that at this age the mortality depends on factors against which our present modes of treatment are powerless. Among these factors are the constitutional resistance of the individual and the occurrence of complications. Pneumonia finds the organism unprepared to resist either the spread of the disease or the onset of complications, which carry away the patient in spite of all we can do. Of the 117 deaths occurring below the age of 1 year, 63.5 per cent. occurred in the first three months of life, 47.8 per cent. between the ages of 3 and 6 months, and 25.3 per cent. from the sixth to the twelfth month of life. The greatest mortality occurred at a time (from birth to the third month) not only when the body is in a formative period, but also when the powers of resistance to disease are at a minimum, and when complications easily set in and overwhelm the patient. In considering the mortality in pneumonia, clinicians, as a rule, shun these cases, if they wish to show favorable results from the treatment of a number of cases of pneumonia, swamping, as it were, this high mortality rate below 1 year of age by bringing forward large numbers of cases of pneumonia at the more advanced ages of childhood, up to the second year. Or they group all the cases below 1 year of age, thus avoiding the disconcerting showing of a high mortality among infants below 3 or even 6 months of age. No one who studies the statistics here presented can find fault with the mortality of the pneumonia cases from the fourth to the tenth year; 279 cases show a mortality of only sixteen, or 5.7 per cent. This, of course, presupposes deaths in all cases not due to empyema or operation for empyema.

TABLE 1.—NUMBER OF CASES AND DEATHS ACCORDING TO AGE (SERIES A)

Age of Patient	No. of Cases	No. of Deaths	Percentage of Mortality
1 year	334	117	35
1-2 years	441	80	18.1
2-3 years	204	28	13.2
3-4 years	93	7	7.5
4-5 years	56	6	10.7
5-6 years	53	3	5.6
6-7 years	59	4	6.7
7-8 years	31	1	3.8
8-9 years	15	0	0
9-10 years	19	0	0
10 + years ...	46	2	4.3

TABLE 2.—NUMBER OF CASES AND DEATHS UNDER 1 YEAR (SERIES A)

1906-1914

Age of Patient	No. of Cases	No. of Deaths	Percentage of Mortality
0-3 mos	44	28	63.5
3-6 mos.	69	33	47.8
6 mos.-1 yr.....	221	56	25.3
Total under 1 year 334			

COMPLICATIONS

In speaking of complications, I shall consider those affecting infants and children below 2 years of age. I shall treat of their seriousness, and shall dea especially with those which in the end militate against the recovery of the patient.

Of 248 deaths below the age of 10 years, 19 patients died of or with complications. Most of the cases in patients above 2 years of age show few complications, and this incidence diminishes markedly above the third year of age. Thus, there were 117 deaths below 1 year of age, among which were ninety-three fatal cases with complications. Between the ages of 1 and 2 years the complications occurred less often, fifty-eight in eighty cases, and in the second to third year, of twenty-eight fatal cases, there were twenty-two with complications. At this later period it may safely be said that the severity of the complication as regards its hastening a fatal issue is much less than during the first year. Of 117 deaths below the age of 12 months, fully ninety-three patients had complications that favored a fatal issue. At this period of infancy a complication that in later childhood might be overcome by the patient will not yield to treatment, but steadily exhausts the strength of the patient.

Of the infants below the age of 12 months affected with pneumonia, and dying with complications, we find the incidence given in Table 5.

TABLE 3.—NUMBER OF DEATHS FROM PNEUMONIA WITH COMPLICATIONS ACCORDING TO AGE (SERIES A)

Age of Patient	Total No. of Deaths According to Age	Total No. of Deaths with Complications According to Age
1 year	117	93
1-2 years	80	58
2-3 years	28	22
3-4 years	7	6
4-5 years	6	5
5-6 years	3	2
6-7 years	4	3
7-8 years	1	1
8-9 years	0	0
9-10 years	0	0
10+ years	2	2
Total deaths		248
Total deaths with complications		192

Of the 117 cases of death occurring below 1 year of age, only nine patients came to the hospital in a moribund condition. The principal complications seemed to involve the gastro-intestinal tract. These infants were brought into the hospital in a state of marasmus, or suffering with ileocolitis. Therefore, fully half of the deaths were due to complications which lessened the chances of recovery when admitted to the hospital, and this in spite of the special nursing and care that were given them. Among the cardiac conditions were those of congenital heart lesions. In scattering cases, measles developed in the hospital, or the patients came in with measles, diphtheria, pertussis, nephritis, sepsis, abscesses of the joints and of the skin, erysipelas and tuberculosis of the abdomen. It is apparent that in the first year of life a patient with pneumonia, in order to recover, must remain free from complications, and especially must not suffer from conditions which sap the strength of the patient, and nullify all efforts of therapy. It may be said without reservation that the complications occurring in our cases were not the result of hospital conditions; that the patients were admitted to the hospital with these complications.

Meningitis.—To me the most serious complication, after that of the gastro-enteric tract, is meningitis. When accompanying a pneumonia occurring during the first year, meningitis is invariably fatal. It occurred more frequently in our statistics at this age than later in childhood. In the course of eight years, there were ten cases of meningitis at all ages verified by lumbar puncture. Five of these occurred in infants below 1 year of age. Only two cases occurred between the ages of 2 and 10 years. The frequency of this complication is thus much diminished after infancy and early childhood. The symptoms are not masked. The diagnosis of the condition is easily made. Lumbar puncture was made in all cases. Pneumococci, streptococci, meningococci and influenza bacilli were found in the puncture fluid. In the newborn the streptococci are to be sought.

Meningism.—The most misleading complication is meningism. This complication is much more frequent and misleading in older children than one would at first thought suppose. Meningism is a condition characterized by symptoms that at times closely simulate meningitis, and, as a rule, these symptoms are present from the onset of the disease. They are unconsciousness, delirium or stupor, rigidity, Kernig's sign, Brudzinski's sign, and Macewen's sign. In young infants the condition of the fontanel, whether it is bulging or not, will guide us, but in older children it is at times impossible, without lumbar puncture, to say whether or not meningitis is present. This is especially true in the onset of an apical lobar pneumonia. I have in these cases found a sterile cerebrospinal fluid, and waited patiently for three or four days before definite lung signs developed.

TABLE 4.—TOTAL NUMBER OF CASES AND DEATHS FOR EACH YEAR, ALL AGES (SERIES A)

	No. of Cases	No. of Deaths	Percentage of Mortality
1906-1907	116	27	23.2
1907-1908	157	31	19.7
1908-1909	156	23	14.6
1909-1910	177	40	22.7
1910-1911	182	33	18.1
1911-1912	210	32	15.2
1912-1913	221	28	12.6
1913-1914	132	34	25.7

In older children, as a rule, the outlook is good, though the condition of the patient may be disquieting. When these cerebral symptoms appear in younger children and infants below 2 years of age, the prognosis is grave. Thus, of sixteen patients below 2 years of age showing these symptoms, nine died, and of eight below 1 year of age, six died. Of the whole series of thirty-one cases of meningism, fifteen patients were above 2 years of age, and only three died. Above 5 years of age, none died. I would conclude, therefore, that above 5 years meningism is of no moment as clouding the eventual prognosis, but below the age of 2 years it is practically a fatal sign. In children above 5 years of age, if, after passing through pneumonia, cerebral symptoms appear just about the time one would expect improvement, the outlook is grave, especially if the local symptoms indicate no tendency to resolution.

TABLE 5.—NATURE OF COMPLICATION

Cerebral	10
Pleural (empyema)	5
Cardiac (congenital)	3
Abdominal (intestinal infection)	31
Moribund in hospital	9

THE BREAST FED AND THE ARTIFICIALLY FED INFANT

I have made feeding statistics of all infants below 1 year of age discharged from the hospital, and also of fatal cases for eight years, 399 cases in all. The discrepancy in figures between this and other tables is probably accounted for by the inclusion of a few cases from other services under my care. Of the 399 patients, 212 were either wholly or partly breast fed, or 53+ per cent., which is certainly an excellent showing for the mother effort. All of the infants below

6 months of age were nursed on the breast, during the illness, by the mother. In the hospital it is customary to have the mother come and nurse the baby as often as practicable. Of the 132 fatal cases below and at 1 year of age, sixty-seven patients were breast fed and sixty-five bottle fed. From this we are forced to conclude that for this class of infant the nature of the feeding was not of value as to the ultimate outcome of the case. It must not be assumed that, because an infant is breast fed, its chances of recovery are better than those of the artificially fed infant, except as shown in these statistics.

There are many so-called breast fed infants who are not robust, and to whom the breast being inadequate has not given the resistance that a successfully bottle fed infant has. I therefore would not say that, *a priori*, the nature of the feeding had any effect on the outcome, but that it was rather a question of the success of the feeding. Thus, a breast or bottle fed infant with good digestion, weight and absence of complications was better off as to prognosis than a bottle fed infant with bowel disturbance, or a breast fed infant to whom the breast has not been adequate, and in whom there were complications. Today a well fed bottle infant has as good a prognosis as the successfully fed breast infant, however heretical this statement may appear to some who believe that a breast will cover all sins of omission, as to the nutrition of the patient.

In the course of pneumonia an infant below 1 year of age, whose artificial feeding is skilfully handled and who, before the onset of the illness, has had no intestinal disturbance of moment, will combat the pneumonic process as well as the well nourished breast fed infant. In fact, the breast fed infant during pneumonia has much to contend with in the ministrations of an exceedingly nervous mother, whose breast milk seems to cause disturbance in the patient; whereas an adequately fed bottle infant has always a ration of uniform constitution, which disturbs the well-being less than the apparently more fortunate breast fed infant. Modern methods of artificial feeding of infants have not in any way compromised their resisting powers to the inroads of disease, nor can we say, as far as the prognosis is concerned, that the breast milk will succeed in cases in which the bottle fed infant may not hope to weather the storm. It is not the nature of the feeding, but rather its success in bringing a flawless constitution to the attack of pneumonia that determines the recovery or the fatal issue.

There is, of course, the reservation that among the poor and ignorant, the artificial feeding, especially in summer, is apt to cause serious and fatal gastro-enteric disturbance. At the same time, a study of the fatal cases shows that the breast alone cannot ward off a fatal issue. This is especially true in infants below 6 months, and more so below 3 months of age.

TREATMENT

The treatment of pneumonia in infants and in children may be divided into that of nursing, which includes the feeding, and the medicinal management of the case. The nursing reaches its primary importance in the period of infancy. I have pointed out how essential it is at this time to avoid mixed infections, if possible. In no field is this so evident as in the treatment of infants to the end of the eighteenth month. The care of the skin, eyes and mouth is of great and far reaching importance. Careless handling of the skin by nurses is productive of skin infections, furuncles and abscesses, which are apt to get beyond medical control and cause serious consequences. The same thing is true of other parts of the body. A nurse must, therefore, appreciate fully the necessity of cleanliness and attention to detail in order to be of the greatest aid to the physician.

This is what is meant when writers speak of hospitalism and infection. There is today no real excuse for hospitalism, and its presence should be a just cause for criticism of the efficiency of nursing and of hospitals. Very often infants who have had pneumonia are discharged from institutions in the most miserable condition. There are two sides to this picture, as far as the hospital is concerned. The patient may have come to the hospital in a worse condition than when discharged, and the attending physician may have sent the patient out believing that the convalescence would be more favored by such action, or the patient may have developed an infection in the hospital. The latter condition is inexcusable, and shows clearly that an institution which, in treating a simple condition, adds thereto that of marasmus, or vaginitis, or both, is unfit to cope in a modern way with the proper means of effecting a successful convalescence.

The feeding is a nursing as well as a medical problem in the management of pneumonia. A physician may prescribe a proper feeding, but if this feeding is not prepared and given to the patient in a proper manner, or the state of the nutritional conditions properly noted, then the physician is deprived of a powerful means to favor recovery. Not only is the nursing of these little patients important, but the nurse should be surrounded by safeguards that will aid her in her work, and she must not be hampered.

The ward should be bright and airy, with plenty of working space. The dark, damp, crowded baby ward should be a thing of the past. I have dwelt on the nursing because it is rarely spoken of in treatises or articles of the character of this one, and physicians are apt to concentrate their attention on a discussion of medical procedure, omitting what should be considered the first essential in the management of these cases.

Medical Treatment.—Any one who has seen several decades of the management of pneumonia in infants and in children must come to the conclusion that it is not the remedies that determine a successful issue, but the manner in which they are applied. Formerly, certain remedies, such as chest poultices, cold compresses around the neck, expectorants, cardiac stimulents, cardiac depressants and aconite were advocated with empiric ardor. In the treatment of pneumonia, I have been guided, first, by the proper nursing and feeding of the patients, and, then, from a medical standpoint, I have tried to support the strength of the patient with drugs, endeavoring, at the same time, to recognize complications and to meet them as quickly as I could.

Antipyretics.—I have rarely, if ever, resorted to antipyretics for the control of the fever. The fever is a valuable guide in the management of pneumonia, and it cannot be controlled to any great degree—that is, depressed—without injury to the patient. It is simply an expression of reaction of the economy against the inroads of the disease. We should allay the irritability of the nervous system and thus aid the patient to withstand the fever. It is just as well to sponge the patient with lukewarm water and not to resort to ice-cold packs, or cold baths. The ordinary application of cool water to the chest in the form of compresses is sometimes as effective as any form of hydrotherapy, provided the patient is protected from exposure when the compress is on the body, or when it is changed. If the patient is irritable, and there is a moderately severe fever curve, a warm mustard bath is effective in quieting the nervous system. After such a bath, an irritable wakeful infant will fall into a quiet sleep for hours. In short, fever is natural to pneumonia, and we should look with concern on an infant who has a low temperature curve with a severe lung lesion. There is no reaction to the infection in these cases, and it spreads. These patients are weaklings.

TABLE 6.—COMPARISON OF CASES TREATED WITH AND WITHOUT ALCOHOL (SERIES A)

With Alcohol:

	No. of Cases	No. of Deaths	Percentage of Mortality
1906-1907	116	27	23.2
1907-1908	157	31	19.7
1908-1909	156	23	14.6
1909-1910	110	29	26.3
1910-1911	13	4	30.7
1911-1912	26	8	30.7
1912-1913	34	11	32.5
1913-1914	20	11	55.0

Total number of cases treated with alcohol 632
Total number of deaths in cases treated with alcohol.. 144

Without Alcohol:

	No. of Cases	No. of Deaths	Percentage of Mortality
1906-1907	0	0	0
1907-1908	0	0	0
1908-1909	0	0	0
1909-1910	67	11	16.4
1910-1911	169	29	23.1
1911-1912	184	24	13
1912-1913	187	17	9
1913-1914	112	23	20.5

Total number of cases treated without alcohol 719
Total number of deaths in cases treated without alcohol.. 104
Total number of cases treated with and without alcohol.1,351
Total number of deaths in cases treated with and without alcohol 248
Average percentage of mortality 18.3

Drugs.—With infants, and even older children, we must avoid all disagreeable drug medication. I fear to "upset the stomach," as it is popularly termed, and thereby interfere with my nutritional efforts. This is of especial importance in young infants. Physicians will insist on giving calomel, ammonium carbonate, ammonium chlorid, terebene, camphor, glycyrrhiza and ipecac in large, disagreeable doses. I often ask myself, "Why?" They cause vomiting, and in some cases diarrhea, and hamper the patient to an inordinate degree. The superiority of the hypodermic method of medication is well illustrated in the management of the pneumonia of infants and young children. The stomach is left free for the assimilation of whatever food the infant may take, and the momentary pain of a hypodermic needle is more than compensated for by the freedom of the patient from dyspeptic symptoms.

Use of Alcohol.—In considering my treatment of the 1,351 cases here collated, there are two distinct periods. One period extends over the years in which alcohol in the form of whisky was freely used, and the other period comprises those cases in which no whisky was used. In this way I have been able to judge in what respect this alcoholic was of benefit to the patient. As a young physician, I saw whisky given freely to children in Bellevue Hospital, so that later as attending physician I came to favor its use for many years. In the past three years, whisky has been discarded entirely in the therapy of pneumonia. Up to 1909 all patients received more or less whisky. Then I gradually began to discard it, fearing to drop it altogether, so that, during 1911, 1912, 1913 and 1914, there was a certain proportion of cases, always increasing, in which whisky was discarded, until I finally dropped it entirely. Discarding whisky, in the case of young children in half teaspoonful and older children in teaspoonful doses, I gave exceedingly small doses of spiritus aetheris nitrosi to infants, a drop every three hours, to older children never more than 3 or 4 drops, and finally discarding this, as some infants would not take it, until from 1913 to 1914, of 132 cases of pneumonia, whisky or alcohol was used in only twenty, so that the change by which whisky was completely discarded was not made abruptly, but extended over a period of five years.

Among 632 cases of pneumonia of all ages treated by the administration of medicinal doses of whisky, there were 144 deaths, a mortality for all ages of 22.8 per cent., including the infants below 3 months and below 1 year of age. Among 719 cases treated without whisky (alcohol), there were 104 deaths, a mortality of 14 + per cent. During the years in which whisky was used in all cases, whether severe or slight, namely, the years 1906 to 1909 inclusive, there were 429 cases with eighty-one deaths, a mortality of 18 + per cent. It may be thought, and with justice, that, in the years in which alcohol was and was not used, the high mortality with alcohol might have been due to the fact that the more severe cases received the whisky; hence the higher mortality. That is only partly true; however, during the year 1912-1913, for example, of a total of 221 cases, only thirty-four were treated with alcohol; in the year 1913-1914, of 132 cases, only twenty were treated with alcohol. Thus the number treated with alcohol was steadily decreasing. We will admit for the sake of argument and conscience that only the more severe cases in late years received whisky or alcohol; hence the higher mortality. But the whisky did not enable me to save life. Therefore I discarded it.

During the years 1915 and 1916, whisky has been discarded entirely in the treatment of pneumonia and the results have been good. During 1915 and 1916 there were 391 cases. This comprises Series B of my cases, from birth to the tenth year, and above. Of these, fifty-six resulted fatally, a mortality of 14 per cent. There were 113 patients of and below 1 year of age with a mortality of thirty-three, or 29 per cent. From birth to the third month there were in these two years ten patients, practically all new-born, with septic complications, with a mortality of seven, or 70 per cent. In all these cases the pneumonia was a manifestation of general sepsis. From the third to the sixth month there were thirty-two cases, with a mortality of eight cases, or 25 per cent., and from the sixth month to the twelfth month inclusive, seventy-one cases, with a mortality of eighteen, or 25 + per cent. These figures compare not only favorably with the 1,351 cases previously cited, but give

TABLE 7.—TOTAL NUMBER OF CASES TREATED WITHOUT ALCOHOL FOR THE YEARS 1915 AND 1916 (SERIES B)

	0-3 Mos.	3-6 Mos.	6-12 Mos.	1-2 Yrs.	2-5 Yrs.	5-10 Yrs.	Totals
No. of cases ...	3	24	53	100	81	74	335
No. of deaths .	7	8	18	13	5	5	56
Total	10	32	71	113	86	79	391
Percentage of mortality	70	25	25	11	5	6	14

no support whatever for the alcohol treatment of former years, especially if we look at the percentage mortality: from the first to the second year, 113 cases with a case mortality of thirteen, or 11 per cent.; from the second to the fifth year, eighty-six cases with a case mortality of five, or 5 per cent.; from the fifth to the tenth year, seventy-nine cases, with a case mortality of five, or 6 per cent. These statistics prove beyond any doubt not only all the data as to the high mortality in the new-born period, but the benign nature of pneumonia in later childhood under careful nursing, and hold out no encouragement for the older methods of active alcoholic administration. The use of whisky in former years was not justified by the results attained. The complete disuse of alcohol has not harmed my patients.

Cold Air; Fresh Air.—In the treatment of pneumonia the rôle of cold fresh air has been exploited though there were something in the freezing air at would act as a specific in bringing about a favorable result. I found by careful study that both infants and young children stand cold very badly. Some patients seem to struggle against its effect, instead of accepting the cold as a relief from their sufferings. Some infants, when placed warmly bundled up in a cold room with open windows, grow cyanosed, and the whole system seems depressed. Rarely will an infant placed in the cool, open room react in a manner to make us feel that we are helping the patient. The pale infant becomes blue, the ruddy infant, pale. I have finally concluded that the middle course of giving fresh air which, if possible, is at a temperature that is not uncomfortable to the nurse, is the correct procedure. If we can place the patient in a room in which the incoming air passes over a warm radiator, it is probably the ideal condition. The air in the sick room should be fresh and crisp, but not icy cold. Cold is not specific in the treatment of pneumonia; certainly not cold air.

Hypodermic Medication.—Wherever it is possible, I set great store by the hypodermic method of medication, properly carried out by a careful nurse, avoiding skin infections. The use of camphor (which is not at all new) suspended in oil, with or without caffein, has proved the most satisfactory from a clinical standpoint. Camphor is a mild cardiac stimulant. After its injection I have found the pulse stronger and more forceful, but only for a short time. I regard it, like all the resins and balsams, as a mild expectorant, so that its use is justified in two directions. I have never seen any harm result to the kidney from proper dosage. It is difficult to lay down the exact dosage, but camphor suspended in oil may be given subcutaneously at three hour intervals, a grain for every year of the age, up to 3 or 4 grains. It may be given to the new-born in doses from one-fourth to one-half grain. Caffein is also a useful remedy. It is one of our best cardiac stimulants, but we must remember that it has been shown to be, in large doses, a poison. Therefore caution must be exercised in its use.

Digitalis has lately been brought into notice in the treatment of pneumonia. Given in adequate doses it is useful. The tincture may be used in therapeutically effective doses, but in cases in which a tachycardia develops with threatened breakdown of the heart with enlargement of the liver, the tincture is of little avail. In these cases digipuratum, given intravenously in full dosage twice in twenty-four hours, is of great efficacy. It is the only agent that will avert a cardiac collapse.

SUMMARY

It is evident that I regard the treatment of pneumonia at the present day as symptomatic, and that I believe pneumonia to be a disease in which clinical experience must go hand in hand with good judgment, in order that the patient may not be injured while making the fight for recovery. As to serums or vaccines, they have been even less successful in the final results in children than in adults. Their use is still in a developmental stage.

30 East Sixty-Second Street.

TOXIC FACTORS OF SOME OF THE COMMON ANESTHETIC SUBSTANCES *

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Much of the popular dread of an operation is based on fear of the anesthesia. The laity regards the possibility of a failure to regain consciousness as the chief hazard of most operations. This fear, of course, is traditional from the time when it was not infrequent for patients to die from a badly conducted anesthesia, while the operation was in progress. Surgeons also, even up to very recent times, felt that about the only danger from a narcosis was that of immediate death. The recognition of the condition of so-called "late chloroform poisoning" performed the very important function not only of awakening surgeons to the fact that death from chloroform may occur two or three days after its administration, but also of calling attention to a large number of toxic effects directly ascribable to the induction of general anesthesia, no matter by what anesthetic drug. Many of the unexpected, disastrous results following apparently simple operative procedures are more or less directly the result of the narcosis, even though these results may not be immediately apparent. A consideration of the possible toxic factors of the anesthetic agents, therefore, is highly important in serving to prepare the way for the avoidance of many of these disasters, and in insuring a greater margin of safety to the patient who undergoes an operation.

The phenomenon of narcosis is always accompanied by a condition of diminished oxidations. It therefore always indicates a condition of more or less severe asphyxia of the tissues, even if the frequency and depth of the respirations of the narcotized subject are normal. This has been abundantly shown by the work of Verworn,[1] Mathews,[2] Tashiro[3] and others. Verworn has even concluded, although probably incorrectly, that the phenomenon of narcosis is the same as cellular asphyxia. In 1912[4] I called attention to the close similarity which exists between the lesions of so-called late chloroform poisoning and those which can be induced by direct asphyxia. J. Loeb[5] has shown that an asphyxiated tissue always becomes acid. It is not surprising, therefore, that every surgical anesthesia induces many of the signs of an acid intoxication. As is well known, also, an existing acidosis is always aggravated by a surgical anesthesia.

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* Read before the Section on Surgery, General and Abdominal, at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

[1] Verworn: Narkose, Jena, Gustav Fischer, 1912.

[2] Mathews: The Action of Ether on an Anaerobic Animal Tissue, Jour. Pharmacol. and Exper. Therap., 1910, **2**, 231.

[3] Tashiro: A Chemical Sign of Life, University of Chicago Press, 1917.

[4] Graham, E. A.: The Pathogenesis of the Hemorrhagic Diseases of the New-Born, Jour. Exper. Med., 1912, **15**, 307.

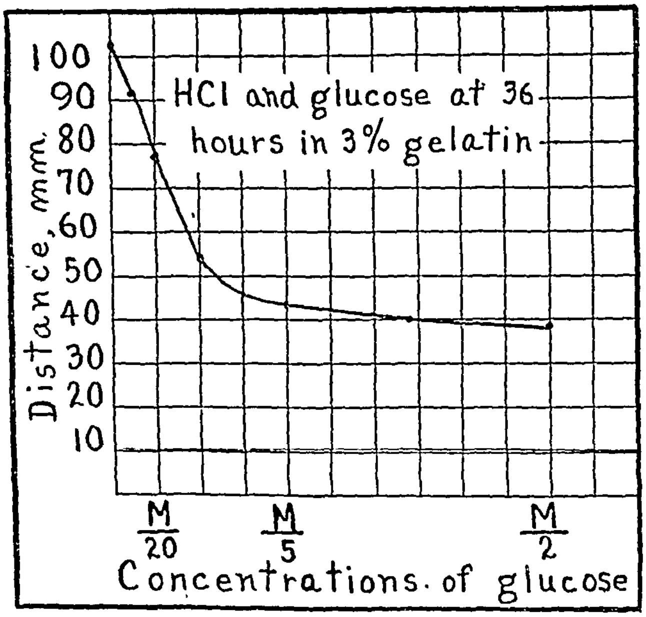
[5] Loeb, J.: Arch. f. d. ges. Physiol., 1898, **71**, 457.

The power of the various common anesthetic substances to induce severe toxic effects varies greatly. For example, ether and nitrous oxid cause these changes much less readily than does chloroform; and nitrous oxid has only slight tendency to induce them. The explanation of the increased toxicity of chloroform over ether and nitrous oxid is probably to be found in the fact that during the breakdown of chloroform in the body hydrochloric acid is formed. Neither nitrous oxid nor ether can yield a strong mineral acid in their breakdown. Therefore, chloroform, in addition to giving rise to an acidosis as a result of the narcosis asphyxia, actually yields a strong inorganic acid as well. The morphologic changes in the tissues characteristic of late chloroform poisoning, such as edema, hemorrhages, fatty changes and central necrosis of the liver, are probably really the effects of hydrochloric acid. I have given elsewhere evidence in support of this view,[6] which evidence may be thus epitomized:

1. It is well known that, in the test tube, chloroform, in the presence of oxygen and water, is readily decomposed into hydrochloric acid. This decomposition is expressed in the following equations:

$$CHCl_3+O \rightleftarrows COCl_2+HCl$$
$$COCl_2+H_2O \rightleftarrows CO_2+2HCl$$

It is reasonable to suppose, therefore, that in the tissues where available oxygen and water are at hand, each molecule of chloroform might yield three molecules of hydrochloric acid, if the decomposition were complete. That such a decomposition actually does occur in the body seems to be apparent from the following facts obtained in a study of the condition of so-called late chloroform poisoning.



Curve showing the inhibition of diffusion of hydrochloric acid in gelatin by various concentrations of glucose. It is noticed that the smaller concentrations induce relatively the greater inhibition. The tubes were kept at a constant temperature of 26 C.

2. Hydrochloric acid in suitable concentrations induces experimentally a picture similar to that of delayed chloroform poisoning. In dogs intraportal injections of from 10 to 25 c.c. of from one-seventh to two-sevenths normal concentrations of hydrochloric acid results in the development of changes in the liver which closely parallel those obtained with chloroform, such as necrosis, fatty changes, hemorrhages and edema.

3. Attempts to recognize the presence of free hydrochloric acid in the surviving livers of animals, in which the condition of late chloroform poisoning had been experimentally produced, resulted in a demonstration, by means of neutral red, of free hydrogen ion, and, by means of silver nitrate, of an excess of free chlorin ion. For various reasons, however, this finding cannot be taken as proof of the presence of free hydrochloric acid. It is merely an indication.

4. Since chloroform is the trichlorin substitution product of methane, and since the other chlorin substitution products can yield, outside of the body at least, the same number of molecules of hydrochloric acid that there are atoms of chlorin in their respective molecules, it seemed of interest to study some of these other products in relation to their respective ability to induce the lesions of chloroform poisoning. Theoretically, we should expect the series to run in this order on the basis of their respective powers to induce these changes:

$$CH_3Cl<CH_2Cl_2<CHCl_3<CCl_4$$

Only the last three substances were used to test this point. The accompanying table shows that the toxicity, or the ability of these substances to induce the lesions in question, is roughly proportional to the number of molecules of hydrochloric acid which they can yield in their breakdown outside the body. The theory, therefore, is shown to hold.

5. Alkali, when given to dogs in suitable concentrations simultaneously with chloroform, inhibits to a marked degree the production of the typical lesions by chloroform. This fact alone, of course, lends strong support to the idea that these lesions are effects of an acid intoxication.

6. Iodoform (CHI_3) and bromoform ($CHBr_3$), which are similar in structure to chloroform ($CHCl_3$), likewise produce lesions which are indistinguishable from those of chloroform. In their cases, however, we should expect to be dealing with hydriodic and hydrobromic acids, respectively, instead of hydrochloric. As a matter of fact, positive evidence is present that after the administration of these substances these acids are actually formed in the body, for their neutral salts are found in large quantities in the urine, just as after the administration of chloroform an excess of chlorids is present in the urine.

RELATIVE TOXICITY OF SUBSTANCES

Substance	Minimal Fatal Doses per Kilogram of Rabbit Gm.	Minimal Fatal Doses Expressed in Grammolecular Concentrations
CCl_4	0.053	0.000344
$CHCl_3$	0.085	0.000711
CH_2Cl_2	0.147	0.001610

7. Strong evidence is also at hand to show, as would be expected, that the halogen substitution products of ethane act in a similar manner to those of methane both in producing the same type of lesions and in yielding their respective halogen acids, hydrochloric, hydrobromic and hydriodic acids, in their breakdowns

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[6] Graham, E. A.: Late Poisoning with Chloroform and Other Alkyl Halides in Relationship to the Halogen Acids formed by their Chemical Dissociation, Jour. Exper. Med., 1915, **22**, 48.

in the body. The substances used to determine this fact were: ethyl chlorid (C_2H_5Cl), ethyl bromid (C_2H_5Br), ethyl iodid (C_2H_5I), and ethylene bromid ($C_2H_4Br_2$).

8. That the poisonous effects of chloroform are due rather to the hydrochloric acid which it yields than to the mere presence in its molecule of three atoms of chlorin is shown by the fact that chloral hydrate $(CCl_3{-}CH\begin{smallmatrix}/OH\\ \backslash OH\end{smallmatrix})$, which also possesses three atoms of chlorin, is incapable of producing the lesions typical of chloroform poisoning. This substance is excreted from the body as trichlor-ethyl-glycuronic acid and is therefore incapable of forming appreciable amounts of hydrochloric acid in the body.

It is an interesting and well known fact that an organ which is richly supplied with glycogen is much less susceptible to the action of various poisons. This protective action of glycogen has frequently been shown in connection with those intoxications which are associated with an acidosis. In a previous article[7] I have shown that the remarkable resistance of young pups to the production of late chloroform poisoning is due to the high glycogen content of their livers. The question of how glycogen protects against these various poisons has never been satisfactorily answered. In an attempt to study this question, and on the basis of a brief observation by Bechhold and Ziegler,[8] I have been able to show[9] that glucose markedly inhibits the diffusion of acids through gels. Since, in the presence of an acid, glycogen is readily depolymerized into glucose, it is probable that, in the case of acid poisons, the protective action of glycogen is really carried out by glucose. It is therefore probable that this property which glucose possesses of inhibiting the diffusion of acids through gels is at least somewhat concerned in the protection of the cell or certain phases of the cell against acid poisons (see chart).

Up to this point only those toxic factors of anesthetics have been discussed which deal with the formation of acids within the body. There are many other factors which doubtless are of importance, some of which, like acetone for example, are formed secondarily and probably as a result of the inhibition of oxidations during the course of the narcosis. But besides these, we must consider certain points which are concerned with the fundamental chemistry of the substances which induce anesthesia, and which may be more or less intimately related to the whole problem of the nature of the state of anesthesia itself. I refer now to the dissociation products of these substances other than acids. Limitations of time will not allow more than a mere indication of these.

For a number of years before his death, J. U. Nef[10] had been accumulating a mass of evidence to show that many carbon compounds owe their reactivity to a dissociation of such a type that a product containing unsaturated carbon is formed. The tremendous reactivity, and therefore probably the toxicity of the cyanids is probably due to the fact that cyanid with unsaturated or bivalent carbon is always present in any cyanid solution together with that which is saturated and inactive. This may be shown as follows:

$$K{-}C{\equiv}N \rightleftarrows K{-}N{=}C\rightrightarrows$$

Likewise alcohol, ether, the alkylhalids, and other substances, probably dissociate in such a way as to yield bivalent carbon, thus:

CH_3CH_2OH	$\rightleftarrows$	$CH_3CH\rightrightarrows$	$+$	HOH[11]
Alcohol (ethyl)		Alkylidene (Unsaturated carbon component)		wafer
$(CH_3CH_2)_2O$	$\rightleftarrows$	$2CH_3CH\rightrightarrows$	$+$	HOH
Ether (ethyl)		Two alkylidene		Water
CH_3CH_2Cl	$\rightleftarrows$	$CH_3CH\rightrightarrows$	$+$	HCl
Ethyl chlorid		Alkylidene		Hydrogen chlorid
Cl_3HC	$\rightleftarrows$	$Cl_2\rightrightarrows$	$+$	HCl
Chloroform (trichlormethane)		Alkylidene		Hydrogen chlorid

It has long been considered that carbon monoxid likewise owes many of its properties to its unsaturated carbon $O{=}C\rightrightarrows$

Since both the cyanids and carbon monoxid produce effects on the body similar to those of the common anesthetic substances, it is very interesting that probably they all are capable outside of the body of dissociating in a similar manner to yield an unsaturated carbon residue. That this type of dissociation also occurs within the body, at least in the case of the alkylhalids, seems to be indicated in the work described above, which shows that hydrochloric acid is formed within the body during the breakdown of chloroform, hydrobromic acid during the breakdown of bromoform, etc. It is therefore highly probable that, in a manner analogous to the case of the cyanids and carbon monoxid, the toxic properties of many of the anesthetic substances are partly due to the unsaturated carbon residue.

SUMMARY

The common anesthetic substances yield toxic products indirectly by the formation of various asphyxial acids and by favoring the formation and accumulation of many toxic products of metabolism other than acids.

Certain anesthetic substances, notably those which belong to the group of alkylhalids, in addition, are capable of yielding strong mineral acids in the tissues as dissociation products. For example, chloroform is broken down in such a way as to yield hydrochloric acid in the body.

The common anesthetic substances are capable of dissociating in a manner which yields bivalent, or unsaturated, carbon. The toxicity of the cyanids and carbon monoxid probably depends largely on their property of dissociating in a similar manner. It is therefore probable that some of the effects of the anesthetic substances are due to their unsaturated residues.

ABSTRACT OF DISCUSSION

Dr. C. Henry Davis, Chicago: I have been particularly interested in the study of chloroform, ether and nitrous oxid-oxygen as regards their relative toxicity during pregnancy and labor. Using a specially constructed chamber, these anesthetics were administered to groups of pregnant and nonpregnant guinea-pigs under very similar conditions and the results correlated with clinical observations. Two of the four guinea-pigs subjected to six hours of chloroform anesthesia died in convulsions and showed the typical central necrosis of the liver, such as has been described. Young guinea-pigs, born after the mothers had one hour of chloroform-oxygen anesthesia, had very fatty livers. Oxygen may lessen the danger of chloroform to the mothers, since the respiration is always much slower and more shallow than when ether or nitrous oxid-oxygen is administered.

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[7] Graham, E. A.: The Resistance of Pups to Late Chloroform Poisoning in Its Relation to Liver Glycogen, Jour. Exper. Med., 1915, **21**, 185.

[8] Bechhold and Ziegler: Die Beeinflussbarkeit der Diffusion in Gallerten, Ztschr. f. phys. Chemie, 1906, **56**, 105.

[9] Graham, E. A.: To be published.

[10] Nef, J. U.: Dissociationsvorgänge bei den Alkyläthern der Salpetersäure, der Schwefelsäure und der Halogenwasserstoffsäuren, Ann. d. Chem., 1889, **309**, 126.

[11] The sign $\rightleftarrows$ in these formulas is equivalent to "is in equilibrium with." The sign $\rightrightarrows$ signifies "free" bonds or valences; in other words the carbon atom to which they are attached is what Nef termed "bivalent carbon."

Ether and nitrous oxid-oxygen never produce tissue changes such as we have shown in chloroform poisoning. They do interfere with cell metabolism, and when given over long periods produce changes which are of the type found after simple asphyxiation. Dr. Graham has given us a very clear and logical explanation for this difference in toxicity of the various anesthetics.

CHRONIC DIARRHEAS DUE TO ENTEROCOLONIC CONDITIONS *

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It is a rather difficult task to arrange a satisfactory classification of the different varieties of chronic diarrheas due to enterocolonic conditions. This is largely due to the fact that with improved methods of investigation the etiology of hitherto undetermined forms is gradually being made clear, necessitating frequent changes in classification. Since the term "diarrhea" is used only for a symptom denoting the passage of liquid feces, it not only embodies those forms due to disease of the gastro-intestinal tract, but it is also indicative of those varieties due to conditions arising outside of this tract, such as one commonly observes in toxic states, as is seen, for instance, in nephritis or in the disturbances of internal secretion.

I have followed the accompanying classification in the study of my cases, although I recognize fully its incompleteness:

1. Simple catarrhal enterocolitis.
2. Ulcerative colitis:
   (*a*) Amebic.
   (*b*) Bacillary.
   (*c*) Tuberculous.
   (*d*) Syphilitic.
   (*e*) Carcinomatous.
3. Mucous colitis.
4. Simple colonic infections.
5. Intestinal stasis.
6. Chronic appendicitis.
7. Disturbances of the glands of internal secretion:
   (*a*) Pancreas.
   (*b*) Suprarenal.
   (*c*) Thyroid.
8. Diarrheas of toxic and undetermined origin.

It is sometimes important to differentiate a diarrhea originating from disease of the large bowel from that of the small bowel. This is especially important when surgical interference is contemplated.

In catarrh of the small bowel, the diarrhea is less intense and the pains are colicky in character. The feces are more acid, and contain unchanged bile and undigested food particles.

Mucus is frequently absent, or is present in small amount, and then admixed with the stool. In those instances in which the diarrhea originates in the large bowel, the pain is usually associated with marked tenesmus, and is less frequent than in catarrh of the small bowel. The tenderness on pressure is usually felt along the course of the colon, and not in the umbilical region. Gastric disturbances are usually absent in this affection, and the stools rarely contain undigested food. They are ordinarily alkaline and contain mucus and altered bile.

In this study of my cases of chronic diarrheas I have selected 100 cases, and these have been most carefully investigated. Thirteen cases represent those forms due to achylia gastrica, which cannot be considered here, while thirty-one represent the variety known as catarrhal colitis.

SIMPLE CATARRHAL ENTEROCOLITIS

In all of these cases there was a persistent diarrhea extending over several years, with frequent acute attacks associated with pain and tenderness over the colon; in every instance there was considerable mucus in the stools, together with blood at times. I am firmly of the opinion that the presence of mucus alone in the stools is not sufficient to warrant a diagnosis of catarrhal enterocolitis without the presence of the other symptoms already mentioned. In this disorder the characteristic appearance is usually presented by proctoscopic examination.

It was interesting to note the nature of the gastric secretion in these cases of chronic catarrhal colitis. In eighteen, the gastric secretion was quite normal; there was a hyperacidity in six, and seven presented an achylia gastrica. It is important in all cases of diarrhea associated with an achylia gastrica to determine whether or not the bowel is likewise affected, since in these instances treatment of the gastric disease alone is not sufficient to effect a cure. In the study of our cases of catarrhal colitis, the Schmidt test diet has been of considerable value. On this diet the stool is observed to be liquid or semisolid; rather large, and somewhat brown or light in color, containing more or less mucus in large or small flakes. It has a very fermented odor and contains many gas bubbles. To the naked eye there are no undigested meat fibers, and no excess of fat is present. Microscopically nothing of consequence is noted. The specimen is usually alkaline, and the sublimate test presents a normal coloration. When the stool is placed in the incubator, more or less gas is generated, indicating slight decomposition or putrefaction. Examination for dissolved protein is lightly or markedly positive.

The treatment of the various forms of catarrhal colitis is usually satisfactory. Diet plays an important rôle in this direction. In addition, most of these patients do best when treated with irrigations. Of these, solutions of potassium permanganate, boric acid, gelatin or instillations of protargol are most valuable. The internal administration of large doses of tannigen or bismuth subcarbonate is helpful.

AMEBIC DYSENTERY

Of the ulcerative forms of colitis, the amebic occurred in eight cases in this series. Since this is not an infrequent form of dysentery, the ameba should be looked for in all cases of chronic dysentery. These organisms are best observed in the scrapings obtained from the ulcerations through the proctoscope. The treatment with quinin irrigations and the administration of emetin need scarcely be mentioned here.

According to Nixon, the use of chaparro amargosa is valuable as a substitute for emetin in this disease. Cases that have resisted the emetin treatment have been controlled, according to him, by means of this drug. The plant is a small thorny bush indigenous to Texas and in Mexico. Nixon employs the drug as an infusion in doses of from 6 to 8 ounces.

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* Read before the Section on Gastro-Enterology and Proctology at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

BACILLARY DYSENTERY

There was present in our series but one case of bacillary dysentery. The diagnosis of this condition is usually difficult. The *Bacillus dysenteriae* may occasionally be found in the stools, and when obtained will agglutinate with the blood serum. Whenever amebas cannot be discovered in the stools, this condition must be suspected, and attempts should be made to isolate the organism. According to Shiga this disorder is only a subsequent disease in which it is impossible often to isolate the dysenteric bacillus. In this condition the feces are found mixed with mucus and the débris from the ulcerated areas. Most frequently, however, the mucus is simply hanging to the feces, not being intimately mixed with it. The result of treatment of these cases is not always gratifying. In addition to diet and rest, the best results are obtained by means of irrigations. Of the remedies to be utilized for this purpose, silver nitrate solution (1:500 or 1:1,000), potassium permanganate and tannin are probably the best. Internal medication is usually of little value. Of the remedies that may be employed, bismuth is of some value. In many of these cases, occasional mild purges are sometimes helpful. Of these, castor oil or liquid petrolatum oil is the best.

TUBERCULOUS ULCERATIONS

Tuberculous ulcerations occurred in four instances in our series. These are exceedingly frequent complications of chronic pulmonary tuberculosis and especially frequent as a late manifestation of this disease. This condition is not always associated with a persistent diarrhea, and alternating constipation and diarrhea is not infrequent. Diarrhea is more pronounced when the lesions are in the lower bowel. Pain is the most frequent symptom, occurring usually in the lower abdomen, and it is often most severe before the passage of a stool or after taking food. The stools may be very frequent, and at times may contain small quantities of blood. It is unusual, however, to note the passage of large quantities of blood. Mucus in variable quantities is often admixed with the feces. The finding of tubercle bacilli in the stools is of little diagnostic value, for these organisms are frequently present in patients affected with pulmonary tuberculosis having these organisms in the sputum. Of great interest are those cases of localized tuberculosis occurring about the ileocecal region.

In this condition a definite mass is found frequently resembling a malignant growth. In these cases, in addition to the paroxysmal pains, diarrhea alternating with constipation is observed. In two cases of this variety an operation was performed by Dr. Finney for me with most gratifying results. The treatment of the diarrhea observed in intestinal tuberculosis is exceedingly difficult. Diet and rest play a most important rôle in this direction. Physiologic sodium chlorid irrigations may at times be beneficial, but sooner or later it becomes necessary to administer opium by mouth or by bowel.

SYPHILITIC ULCERATIONS

Syphilitic ulcerations of the small intestines are rarely observed. The most common lesion of this disease is in the rectum. This occurred in two of the cases in my series. When the affection involves the small intestine, the symptoms are those of an ordinary intestinal ulceration, that is, persistent and painful diarrhea remaining unrelieved by the ordinary treatment. When involving the rectum, the picture is so characteristic as to render the diagnosis exceedingly simple. The indurated edges of the elevated ulcer with the smooth base, together with gradually increasing stenosis, is ordinarily sufficiently characteristic to permit of a definite diagnosis.

CARCINOMATOUS ULCERATIONS

This condition occurred in two cases of my series. Carcinoma of the intestine more frequently occurs in the colon and in the rectum, though the disease may occur in the duodenum, jejunum and ileum. Symptoms of obstruction are among the early signs of this affection. These are manifested by attacks of colic associated with constipation. As the disease advances, the contracted area sometimes ulcerates, and constipation may give rise to a marked diarrhea with mucopus and blood in the stools. Of interest in this connection is carcinoma of the pancreas, which is frequently accompanied by a special train of symptoms pointing directly to the affection. In the earlier stages of this disease, the symptoms referable to disorder of the gastro-intestinal tract are manifested. These are especially loss of appetite, nausea and vomiting. There is usually constipation, which is rapidly transformed into diarrhea. The diarrhea becomes more and more intense, and at times fatty stools are observed. After a longer or shorter period of time jaundice appears, which gradually becomes more and more pronounced. The urine at times contains sugar; the liver enlarges and becomes nodulated, and further evidences of malignancy are noted by the cachexia. This affection is of such frequent occurrence that whenever a persistent diarrhea is observed in persons over 40 years of age which cannot be accounted for by the usual causes, carcinoma of the pancreas should be borne in mind.

MUCOUS COLITIS

Mucous colitis is such a well known affection that but little new can be said concerning it. There are three theories regarding the etiology of this affection: first, that it is entirely a nervous affection and that the mucus formed is purely a nervous hypersecretion; second, that it is due to a catarrh of the bowel, and thus has invariably an anatomic basis, and third, that the disease is due both to a nervous irritation and to a catarrhal condition.

Mucous colitis is always associated with evidences of disturbance of the autonomic nervous system, and there are present the signs of a vagotonia. While constipation is usually a prominent symptom, diarrhea is occasionally observed in this disease. This affection occurred in nine cases of our series. In addition to the usual treatment of this disorder, I should like to direct attention to the use of autogenous vaccines, which may be of great benefit in some instances.

COLONIC INFECTION

Among the infections of the bowel that may give rise to persistent diarrhea (not including the amebic and bacillary forms already referred to) there are various other micro-organisms and parasites that may play an important rôle in this connection. Of these may be mentioned certain intestinal worms, including tapeworms, whipworms, flukeworms, strongyloides and various flagellate parasites. The diagnosis of any of these conditions can be readily made by a careful examination of the stools. These infections occurred in six cases of my series.

INTESTINAL STASIS

There are three well marked varieties of intestinal stasis that may give rise to persistent diarrhea. In the first form, the stasis is due to a dilated cecum in connection often with a dilated colon, which is frequently prolapsed and which retains its contents for an unusually long period of time. On account of the retention, fermentation is produced, which is followed by diarrhea. In the second form, on account of the prolonged retention, the fecal masses are channeled, through which the stools pass in a diarrheal form. In the third form, the diarrhea is due to a spastic condition of the bowel giving rise to a frequent expulsion of small round scybala.

The lower bowel is constantly filled with these masses, which produce an irritability of the bowel and frequent desire for defecation. In all of these forms, roentgen-ray and proctoscopic examinations will quickly clear up the diagnosis. Intestinal stasis as a cause of diarrhea occurred in eight cases of my series.

CHRONIC APPENDICITIS

Although diarrhea is rarely observed as a symptom of chronic appendicitis, I am convinced that appendicitis occasionally gives rise to this symptom notwithstanding the fact that these forms of diarrheas are usually attributed to other disturbances, such as colitis or disease of the cecum. This condition occurs most frequently when the inflamed appendix is plastered against the bowel. In one of my cases the nature of the trouble was revealed by the roentgen ray. There were no symptoms definitely relating to the appendicitis, except the diarrhea. In the other case, the patient developed an acute attack of appendicitis. The appendix was removed, and there were no further symptoms. There were three cases of this affection in my series.

DISTURBANCES OF THE GLANDS OF INTERNAL SECRETION

The diarrhea accompanying the disorders of internal secretion need be considered here only so far as these may provoke changes in the intestinal mucosa, on account of which fermentation and diarrhea may be produced.

In the thyroid forms it is probable that an increased peristalsis is at hand in most instances. It is also very likely that many cases of so-called nervous diarrheas on careful examination will be found to belong to this class. In the pancreatic forms, large fatty stools, usually soft but occasionally diarrheal, aid us in reaching a correct diagnosis. In the suprarenal forms, the diarrhea is due to a disturbance of the internal secretion of this gland producing a hyperperistalsis. The intestinal secretions are not ordinarily disturbed in this affection. Five cases of diarrhea due to disturbances of the internal secretions were noted in my series.

DIARRHEAS OF TOXIC AND UNDETERMINED ORIGIN

There still remains a class of diarrheas, the origin of which has not yet been fully determined in all instances. In this class are included those forms in which the irritation is transmitted through the circulation. I refer especially to the diarrheas of nephritis, gout, cirrhosis of the liver, and to the various circulatory disorders, as well as to certain other diseases, such as sprew and pellagra. In some of these instances a catarrhal condition is present, while in others no special lesion is produced and the changes that are observed in the intestinal canal are purely secondary lesions. Diarrhea of nephritic origin is probably due, in the larger proportion of cases, to the excretion into the bowel of irritating toxins, as is shown by the fact that the severity of the diarrhea varies with the exacerbations of the nephritic disease. In patients affected with chronic nephritis extending over a long period of time, uremic ulcers have been observed in both the small and the large bowel. In this series there were eight cases of diarrhea of toxic origin.

I have attempted briefly to describe some of the most important forms of diarrhea due to enterocolonic conditions. The diagnosis of some of these forms is exceedingly simple, while in the larger proportion of cases it is most difficult. It is highly important in all instances to make a thorough study of all features, utilizing all diagnostic measures to ascertain the underlying cause. Only in this way can therapeutic measures be instituted which may prove of the greatest avail.

RECTAL AND SIGMOID CONDITIONS IN CHRONIC DIARRHEA *

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The conditions found in the rectum and sigmoid flexure in cases of chronic diarrhea differ very markedly, and they may be due to numerous causative factors.

1. They may be caused by a primary infectious agent, which may be an amebic, a bacillary or a flagellate infection, or some other infectious element which may persist over a long period of time.

2. The conditions may be due to the primary and some secondary etiologic factors, as when during the course of a proctocolitis, the primary cause of which was a bacillary or flagellate infection, the patient becomes infected with the pathogenic ameba. The case may be one primarily of amebic infection, which, though it has continued over weeks or months, or even years, may not have produced alarming symptoms, until some secondary infection ensues, which may convert a seemingly indifferent situation into one of alarm, with possibly fatal results.

3. They may be due to the primary pathology, which was produced by the primary etiologic element or infection, though the latter may have been controlled, or may have disappeared entirely; hence, we have observed very extensive rectocolonic ulcerations due primarily to the ameba infection and secondarily to a streptococcic invasion, and though we had controlled the ameba infection, as we believed, the mucous membrane slough has been so extensive that the ulceration persisted for a long time, and the natural result was that the diarrheal symptoms also persisted.

4. A chronic diarrhea has oftentimes been observed to persist after all primary etiologic factors and all

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* Read before the Section on Gastro-Enterology and Proctology at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

primary pathology have disappeared. This, I believe, occurs most often as a result of a late pathologic condition, such as adenomas, syphilis, and newly formed membranes.

5. There are also contributory physical and systemic diseases and conditions in which a persistance of the diarrheal symptoms are found. In some of these the rectum may present only a red and glazed appearance, or may appear quite normal macroscopically. At this point I might mention, for the purpose of discussion, some cases of so-called mucous colitis, which have followed certain operations, or which have persisted long after an intestinal infection has been controlled, and all ulcers in the rectum and sigmoid have healed, but if the abdomen is reopened, there may be found, as I have observed in some cases, a pericolic veil-like process extending over greater or less areas of the sigmoid colon. These veils are very delicate in structure, and are not closely attached to or adherent to the wall of the intestine. To these also may be due the kinks that I have found in some such cases of mucous colitis. With this class of cases I might also associate the persistent and almost uncontrollable diarrheas of cirrhosis of the liver, and those of diabetes and acidosis.

It has appeared to me a rather remarkable fact that in all the voluminous writings on the subject (chronic diarrhea) I have found very few references to even the gross pathology. Owing to the sudden and continued illness of an able pathologist who had promised assistance, I have been forced to omit minute pathology, which I believe is of importance and would have been of rare interest.

The conditions found in the rectum and sigmoid in chronic diarrhea are dependent on other factors than the chronicity of symptoms, for the diarrhea may persist long after the pathologic condition in the rectum and colon, which were the primary causes of the diarrhea, has disappeared.

The primary etiologic factor is usually some acute infectious agent; thus, the bacillary infections may continue for a period and the severity of the resulting inflammation may produce erosions and ulcerations, which do not always heal promptly, even though the infectious agent has been destroyed or neutralized. When this is the case, however, we may be confident there is a mixed infection, and in these conditions the streptococcus has played a damaging contributory rôle. In this type of cases, we observe erosions of the epithelial layer, or more or less extensive casts of false membrane may be exfoliated with apparently the entire epithelial layer, or the mucous membrane over great areas may be sloughed off at one time. It must be easily understood, therefore, that recovery from the conditions just described would be necessarily slow, and that for this reason the symptoms would continue to persist. If the infection was primarily amebic, we should expect to find and really do find a more thickened rectal and sigmoid wall, and, too, the rectal valves will have become thickened and unyielding on account of the long continued inflammation, ulceration and fibrosis. The mucous membrane is thick and congested. The intestine does not appear so edematous as is the case in the acute primary processes. The mucosa is covered with a mucopurulent or sanguinomucopurulent coating, underneath which the mucosa is more extensively damaged than would appear, until the coating is washed or rubbed off, when the real extent of gross pathology becomes apparent.

Conditions which serve to stamp a case as a very chronic one are the alternate hypertrophic and atrophic areas, and in some cases I have noticed so much fibrous infiltration of the intestinal wall that stenosis and valvular obstipation have resulted.

On the introduction of the proctoscope, I have observed that the rectum, and less often the sigmoid colon, is covered with a mucopurulent coating, and when this is wiped away, the mucous membrane appears eroded in spots, or more or less discrete ulcers with oftentimes ragged edges will be seen. Oozing appears quite general over these areas, or in other instances the rectal mucosa may seem to be intact, with the exception of a few circinate lines. In some very chronic cases that I have examined, no definite pathology could be found in either the rectum or the sigmoid, except the alternately atrophic and hypertrophic areas of the mucosa previously mentioned, but this was usually in or during a period of abatement of symptoms, when the infectious agent, which was the ameba, was in the encysted state and not creating much disturbance.

The distinctive features I have observed between the amebic rectum and sigmoid colon and the pellagrous or bacillary conditions of the intestines are that in the former the mucous membrane, as previously stated, appears thicker and more edematous and the ulcerations have proved more destructive to the deeper layers, whereas, in both the bacillary and the pellagrous infections the erosions appear more superficial, there is less edema, except in the very acute conditions, and the oozing is from every surface, as if the vasoconstrictors were paralyzed and the blood was oozing from every capillary. Now, while this is the rule, there are marked exceptions; in fact, in some cases the pathology in the rectum and sigmoid was very extensive, as extensive as I have observed in any amebic case.

The conditions found in some cases must necessarily be remittent or intermittent in their severity, otherwise these patients would rapidly become exsanguinated or septic or both, as in fact some do, but apparently with no other treatment than rest, the elimination of carbohydrate diets and the substitution therefor of a diet of milk and eggs, which diet does not supply in the intestinal laboratory a good culture medium, the hemorrhage ceases, the diarrheal symptoms abate, and even constipation may supervene. The intestinal mucosa then assumes a pink or red and glazed appearance, and may for a time thereafter appear quite normal, until the next seasonal recurrence, when the same unhappy course ensues.

If the rectum and sigmoid are examined from time to time between these recurrent attacks of pellagrous diarrhea, the conditions will be seen to vary between these two extremes just described, or the intestine may be congested and coated with mucus, and, after this mucus is wiped away, pin-scratch or circinate lines or discrete erosions may be seen. The intestine may appear blanched, owing to the low condition of the hemoglobin and the inanition, yet, with the recurrence of symptoms the blush and the ooze reappear on both the mucous and serous surfaces. Not only is this the case with the rectum and the sigmoid flexure, but this is the condition we find throughout the colon, including the appendix, and to a certain degree this blush is observed throughout the intestinal tract. I have never observed ulcerations above the cecum in these cases, but the appendix quite often suffers and occasionally perforates. When the intestine is ulcerated the rectum and the sigmoid have always appeared to suffer the greatest degree of pathology.

A condition follows, or is associated, in a limited number of these chronic intestinal infections, amebic and pellagrous or bacillary, which may give rise to a more or less persistent diarrheal disturbance. I refer to adenomas and syphilitic condylomas. The diarrhea will usually persist as long as these growths remain; especially is this true when adenomas are present in numbers, and their removal affords prompt relief. In some of my amebic cases I have observed these adenomas in great numbers, and in one pellagrous case in which I recently performed an appendicocecostomy one of the very large adenomas sloughed and came away.

Some of these tumors have been reported malignant by able pathologists; yet, after their removal with the curet or cautery they have never recurred. Their most frequent location has appeared to be either on or at the base of the rectal valves; however, I have observed them studding both the rectum and sigmoid colon in great numbers.

I have observed in many instances a mucous diarrhea persist for months and years after a primary infection and pathology had disappeared from the rectum and the sigmoid, but a pericolitis had developed, which resulted in the formation of pericolic veils and kinks. The rectum and the sigmoid may appear quite normal in these cases, and no complaint of pain or disturbance is made that could be referred to the lower intestine. These pericolic veils, I believe, are more often found in the South, where infections of the intestine are more common and especially pellagra.

I do not wish to be misunderstood or misquoted in regard to this subject, for I do not refer to such conditions as the bloodless fold of Treves, which I believe are of a different origin and are productive of stasis, while these veils are more often associated with so-called mucous colitis. These constitute a late pathology; hence, in the majority of these cases the rectum and the sigmoid appear normal.

ABSTRACT OF DISCUSSION*

ON PAPERS OF DRS. GANT, FRIEDENWALD AND JELKS

Dr. Charles D. Spivak, Denver: We have neglected physical therapeutics. It took a century, probably, before we found out that air is a good therapeutic agent. We all agree that rest is a therapeutic agent. So is work. All our functions are alternating between rest and work, and yet we do not know how to use rest and work as therapeutic agents. In acute cases of diarrhea hardly any one thinks of prescribing a diet at the first visit. In a case of acute vomiting, no sane person would insist on feeding his patient. The physician would rather order no nourishment, in spite of the great concern, perhaps, of the relatives that the patient has been starving for ten or fifteen hours. When we come to chronic cases of diarrhea or vomiting every writer speaks of a "suitable diet," and nobody knows exactly what a suitable diet is. A sufferer from lung disease uses a physical agent, namely fresh air. The modification of the quality and quantity of the air makes it a therapeutic agent. In chronic diarrheas, the stomach and intestines are irritated. The introduction of food adds insult to injury. It is rational to employ the physical therapeutic agent, rest. Modify the quantity of rest. Leave the intestines and stomach alone for a day, for two, for three, for ten if necessary. I have not yet seen a case of diarrhea, when not complicated by severe pathologic conditions, that would not yield to absolute rest, and absolute rest cannot be secured except the stomach and intestines are not functionating in their digestive capacity. The principle of rest applies to any other organ of the body when irritated, bruised or broken. There is no need to fear having patients abstain from food for one day or ten days. The treatment of appendicitis and peritonitis has taught us that we can keep our patients without food for weeks. The more recent treatment of diabetes by starvation is another plea for the efficacy of rest or abstinence from food as a therapeutic agent of great value.

Dr. Chittenden Hill, Boston: The duty of the large intestine is the absorption of water from the waste. In the colon absorption is accomplished by reversed peristalsis, the water being thrown back into the caput coli where it is absorbed. Material on reaching the descending colon, normally, should be nearly as dry as in the rectum, but should not be so hard and inspissated that the mucosa of the rectum or sigmoid is injured. For obvious reasons civilized man has attempted to establish an artificial habit with respect to the function of defecation, so that one movement of the bowels daily has come to be regarded as normal. A more frequent occurrence is always an occasion for worry and is considered a diarrhea by most people.

The newer physiology of the intestinal tract teaches us that there are several periods throughout the day when peristaltic waves are excited, as by eating or drinking, that would result in defecation had we not almost from childhood disregarded these natural stimuli. In other words, were it not for the dictates of convenience, mankind would more closely resemble the higher animals in respect to emptying the bowels and not become resigned to a fixed routine of infrequent defecation.

Dr. Nathan Rosewater, Cleveland: Dr. Friedenwald's scientific classification points to a more rational therapy. I agree with Dr. Spivak that rest in essential. After using my abdominal plaster bandage for twenty years, I would not treat chronic diarrhea without supporting the abdominal wall with this bandage, whereby irritations and atonicity from ptosis are avoided. The surgeon uses splints to immobilize. So can we to advantage. By using hydrochloric acid over long periods in achylia the neuroglandular function of the stomach can be rested a long time with benefit and may finally refunctionate. Plenty of carbohydrate food gives the necessary alkali desired by Einhorn, so that in spite of added hydrochloric acid as an essential activator the blood content is undisturbed.

Dr. Frank C. Yeomans, New York: Amebic dysentery in this latitude is very insidious and much milder than in the tropics. We very rarely see an abscess of the liver, gangrene or perforation of the bowel. A single course of emetin acts as does a single course of quinin in malaria. Resistant cystic forms may develop later on, and the symptoms recur unless several courses of treatment are given at intervals. After secondary infection of the amebic ulcers has occurred, emetin alone will no longer be efficient. Then we have to resort to irrigations either through the rectum, or an enterostomy, or else autogenous vaccines and other forms of treatment.

One other form of bowel tuberculosis to be emphasized is the hyperplastic. Tuberculoma cannot be distinguished clinically from a malignant growth. Preoperative diagnosis of the nature of this tumor is not essential, for we have a growth which is practically malignant and has to be removed surgically.

Dr. Friedenwald did not mention a serious form of colitis which is difficult to treat, namely, so-called hemorrhagic colitis. The chief symptom is frequent stools, consisting mainly of blood; the blood seems to ooze from the mucosa everywhere. The exact etiology is not known, but the pathology has been studied. I cured three patients with fluid-extract of krameria, alternating with argyrol, 25 per cent.

Dr. J. Rawson Pennington, Chicago: We have heard today that diarrhea may be caused by pyorrhea, achylia, stasis, proctitis, overeating, etc. If this is true, and I believe then diarrhea is a symptomatic or a secondary d
treatment should consist in locating the

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* The first paper in this symposium on "The Surgical Treatment of Chronic Enterocolonic Diarrhea," by Dr. Samuel C. Gant, New York, appeared in The Journal last week, page 1603.

and removing or correcting it, which is necessary to cure the trouble. But when a patient with diarrhea has all the conditions above mentioned, and more too, perhaps, how are we to differentiate and determine the one that is causing the diarrhea? This is the most important question of all. That settled, we will then know whether or not to starve the patient, advise marriage, do a colectomy or a sigmoidostomy, advise the wearing of an abdominal support or give bismuth, etc. But to follow or advise one or the other of these procedures before making a diagnosis is certainly not to be commended.

Dr. Alfred J. Zobel, San Francisco: The giving of frequent irrigations in colitis sometimes keeps up the diarrhea. Great caution must be used. The strength of the solution, and just what is used, is of vital importance. Even the use of a solution containing 1 grain of potassium permanganate to a quart (one of the drugs mentioned today as being of value in intestinal irrigation), when introduced through the sigmoidoscope so that we know it is in the sigmoid and not in the rectum at all, will soon cause griping pains in the abdomen, and the patient will desire to have a rapid evacuation of the bowels. I therefore say again, that in conditions in which we use irrigation, we may err by continuing the irrigations too long, and by using too strong solutions.

With Dr. Friedenwald I must also take issue, as he made the statement that it was easy to diagnose syphilitic ulcers of the rectum. I cannot do it, and all with whom I have spoken say that they cannot diagnose this condition easily. As a matter of fact I have found that it is very difficult to differentiate between beginning carcinoma and a syphilitic condition of the rectum.

Dr. Horace W. Soper, St. Louis: Dr. Jelks mentioned the fact that infection may be limited to the rectum. I recall two cases in which the infection was limited to the rectum where irrigation had washed the infectious material higher and caused general colitis. In this connection the work done by Dr. Rosenberg with the powder insufflation method is interesting. The dry powder method used with the proctoscope will clear up these cases very rapidly. In experimenting with a large number of powders I have found that calomel is the best, inasmuch as it is the most antiseptic of all powders. It is absolutely nonirritating even to the mucosa of the anal canal. Calomel is especially efficacious in the treatment of hemorrhagic forms of proctitis and sigmoiditis.

In response to a question by Dr. R. W. Jackson of Fall River with regard to what precaution is used to prevent absorption of the calomel if it is used in large quantities, or frequently, thus causing calomel poisoning, I answered that calomel, even if used in large quantities in the rectum or sigmoid, is not absorbed. I have used very large quantities, as much as 3 to 4 drams at a time. I believe the reason for this nonabsorption is that the calomel is not broken up as it is in the stomach or small intestine, but that it acts merely as a local antiseptic powder in the lower bowel.

Dr. Harris Weinstein, New York: With regard to the symptoms of carcinoma of the intestine, we are accustomed to consider constipation as the first symptom, but this is not always the case. It is often not a question of constipation, but of retained stool in a section of intestine and then continuous diarrhea on account of the irritation brought about by putrefaction. I have seen any number of cases develop in this way—primarily diarrhea with three to four stools a day, the patient complaining only of distention and foul-smelling stools, but, with the exception of a possible achylia, no gastric symptoms. Appetite and digestion may be excellent. A month or two after the appearance of these symptoms a large mass may be detected in the intestine. Then only obstructive symptoms appear, due not alone to the tumor, but also to spasm caused by irritation of the mucosa adjoining the mass.

Diarrhea in chronic appendicitis is rather rare, but we do meet with cases in which there is diarrhea. Some of these cases terminate in acute gangrenous appendicitis. In pancreatogenous diarrhea the stool is so characteristic that it cannot be mistaken for any other condition.

Dr. J. W. Weinstein, New York: Although my predecessor, Dr. Weinstein, repudiates the starvation treatment, I shall give it the highest endorsement. The statement that patients will not stand for it is not in keeping with my experience. I have tried it for as long as three weeks and the people will submit to it. Of course, we must sometimes modify the treatment, as Dr. Spivak said. The surgeon makes a rectal fistula and gives rest to the colon. We can do that in a milder way. Just give the patient water instead of food, and in some patients the juice of three or four oranges a day. Recently I had a patient who had a large ulceration through the rectum. I explained to him that his bowel must be given a rest; that one way was by a surgical operation, namely, by severing the terminal ileum from the cecum, implanting it temporarily in the abdominal wall, this to be followed later by a second operation, or another way was by means of starvation. He submitted to the starvation method and I can report a favorable result in this case.

Dr. Dwight L. Murray, Syracuse, N. Y.: We must always remember that only about 25 or 30 per cent. of the bowel elimination is the result of food, the débris of food, and that the balance of it is brought down from the stomach and deposited as ash or worn-out material.

Dr. Samuel G. Gant, New York: When appendicostomy fails to relieve or cure chronic diarrhea usually the irrigations are too small or the bowel is always washed out with the patient in the same position, which prevents the fluid from reaching lesions on different sides of the bowel. The benefit derived from bowel flushing is due as much to the mechanical action of the fluid in ridding the intestine of toxins and irritating débris as to the contained chemical. I have obtained the best results with 2 per cent. ichthyol irrigations.

Dr. Julius Friedenwald, Baltimore: It is impossible in so short a period of time as was allotted to me to discuss all of the questions concerning the treatment of chronic diarrheas. In my paper I especially wished to call attention to the importance of etiology. It is very important, if the treatment is to be successful, to clear up the diagnosis; and it is therefore extremely important to study every case carefully, and as far as possible reach a conclusion as to the etiology.

In regard to the treatment of special conditions, I heartily agree with many of the speakers regarding the efficacy of rest in most forms of chronic diarrheas. As to absolute starvation, I have had no experience with this special form of treatment, though we all know the importance of diet in the treatment of chronic diarrheas, and of allowing just as little food as possible. The use of the abdominal support is very valuable, especially when there is the slightest degree of enteroptosis.

Dr. Julius Friedenwald, Baltimore: Regarding the use of emetin, I feel with Dr. Yeomans that it is necessary to repeat the treatment frequently; that one course is not sufficient, and one is forced to repeat the treatment every few weeks or months so as to secure permanent benefit.

Dr. John L. Jelks, Memphis, Tenn.: In attacks in which the diarrhea and toxicity are due to regurgitation into the ileum from the colon, physical rest of the intestine is important, of course. But there is not much rest if the intestine is infected and irritated by bacteria or by some other infectious agent; but if there is a hole in the intestine, by turning clean, or salt, or some aseptic water into it and washing out the irritating stimulus, I believe the more important rest is then made possible.

As to chapparo amargoso, that is very difficult to obtain in this country. I have had no experience with it. It takes a lot of it to conduct a few treatments, and it comes from Mexico.

As to emetin, do not be too sure the emetin kills the amebas. Be less sure the emetin acts as a destroyer of the amebas; be overly sure to cure the ulcerations resulting therefrom, the walls of which contain amebas. Moreover, there are fixed amebas, some cases of which no emetin will cure.

Bismuth in teaspoonful doses every three hours in courses in these chronic cases is appropriate. Formaldehyd-boric solution I know destroys every ameba it comes in contact with. Iodin solutions are exceedingly beneficial in many cases. Do not use the irrigations too long or too strong. Sterile water solutions at times are better than strong solutions.

Syphilitic cases must always have salvarsan, if possible, before serious surgery is practiced. Vaccines, especially autogenous, are beneficial and indicated in many cases.

GASTRIC CONDITIONS IN SPASTIC CONSTIPATION *

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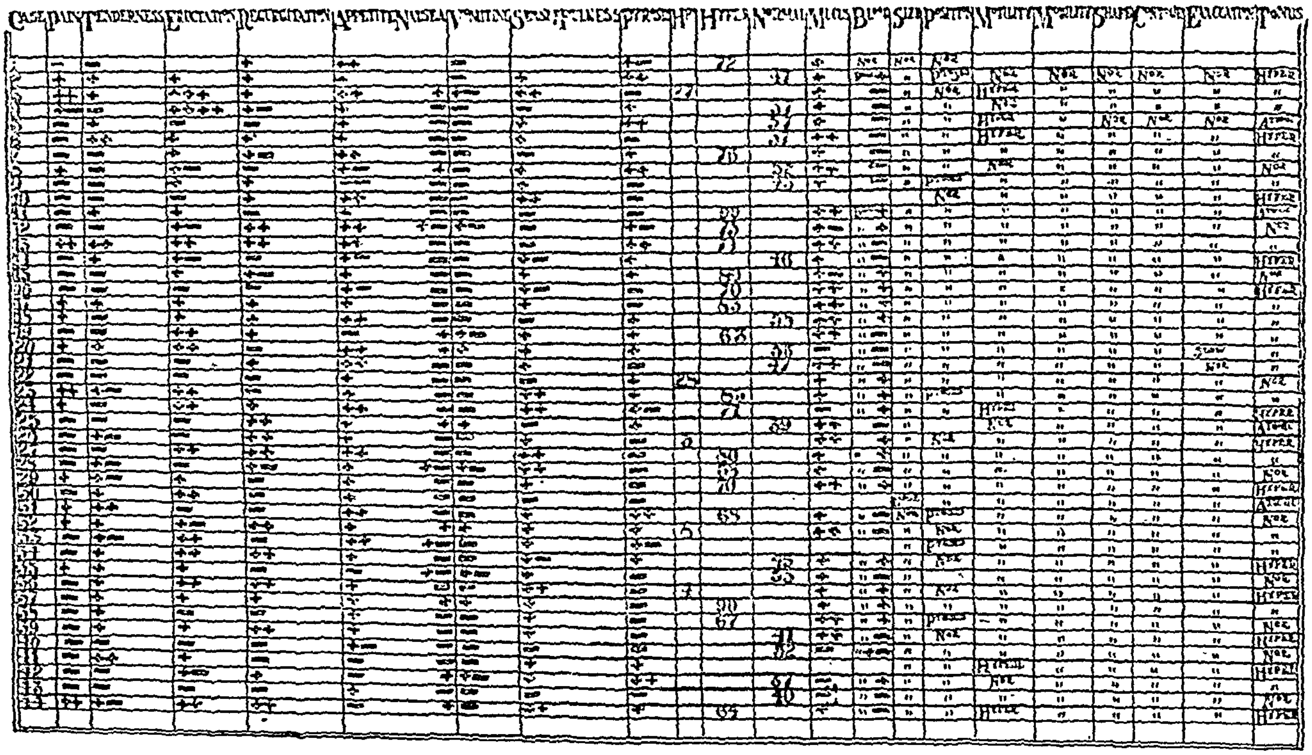
A study of the gastric condition in purely spastic constipation, if indeed there is such a condition, should cover a critical survey of many hundred cases in order that the deductions drawn may be of practical value. For this reason I offer, with full apology, my series of only forty-four cases, which have occurred in my practice during 1917.

Now, turning to a consideration of the objective symptoms, we find that hypertonia of the viscus was present in a large majority of the cases of this series.

STUDY OF THE GASTRIC CONDITIONS IN SPASTIC CONSTIPATION

		No.		No.
Pain	Present	15	Absent	29
Tenderness	Present	25	Absent	19
Eructation	Present	24	Absent	13
Regurgitation	Present	27	Absent	17
Vomiting	Present	10	Absent	34
Fulness	Present	32	Absent	12
Pyrosis	Present	24	Absent	20
Appetite	Present	39	Absent	5
Nausea	Present	13	Absent	31
Mucus	Excess	34	Normal	10
Benzidin	Positive	18	Negative	26
Size	Normal	42	Negative	2
Position	Normal	36	Negative	8
Motility	Normal	37	Hyper	7
Mobility	Normal	44		
Shape	Normal	44		
Tonus (hypo 2)	Hyper	26	Normal	16
Evacuation	Normal	43	Slow	1
Acidity (hypo 2)	Hyper	17	Normal	17

On fluoroscopic examination, twenty-six revealed spastic contraction of the stomach; whereas two were atonic and normal in this respect.



A study of the gastric conditions in spastic constipation.

Obviously it was proper to include only those cases in which a careful roentgen-ray study has been made. Furthermore, I have excluded those cases in which other pathologic conditions, such as chronic appendicitis, chronic cholecystitis or peptic ulcer, were found. In other words, I believe that all the cases reported are chronic spastic constipation.

Of this series twenty-four had pyrosis coming on before meals, while twenty-nine experienced no pyrosis. Twenty-seven complained of acid regurgitation from one-half to two hours after eating, and seventeen did not have it. In thirty-nine cases the appetite was normal or increased, and in five the appetite was absent. Ten of these patients complained of vomiting and thirteen of nausea.

The time of evacuation was normal in forty-three and retarded in one case. The stomach was normal in shape and mobility in all the forty-four cases under consideration; and all but two were of normal size; these two were dilated. In thirty-six cases the stomach was in the normal position, and eight cases showed more or less ptosis. In seven cases hypermotility was present, and in thirty-seven normal motility.

Studying the gastric secretions, we noted that seventeen cases showed moderate hyperacidity with hypersecretion, ten showed subacidity, and seventeen, normal values.

Abnormal amounts of mucus were recorded in thirty-four of the forty-four cases. This coincides with many observations in the past, that whenever we find the stomach the seat of spasmodic contractions, if continuing any length of time, we find a chronic con-

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* Read before the Section on Gastro-Enterology and Proctology at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

gestion of the mucosa with an increased production of mucus. It is in this class of cases we get the bloody smear on the duodenal thread, which is so different from the characteristic short, definite stain, mostly confined to one side of the thread, found in peptic ulcer. To bear out, somewhat, my assertion in this regard, there was a positive benzidin reaction in eighteen of the forty-four cases, showing an engorged mucosa, which is easily disturbed by the stomach tube.

1624 I Street.

ABSTRACT OF DISCUSSION

Dr. I. H. Levy, Syracuse, N. Y.: It is rather unfortunate that the words physician and physic come from the same root. The laity expect the physician to dispense physic and the physician cannot entirely get away from this idea. Constipation may occur with any gastric condition, and, on the other hand, may produce almost any stomach symptom, and it is often difficult to decide which is cause and which effect. Constipation is frequently associated with those gastric conditions which result from the taking of insufficient food. These patients, owing to their stomach symptoms, eliminate one article of food after another until they eat so little that obstinate constipation results. The constipation aggravates the gastric symptoms and the resulting weakness the constipation. This produces a vicious circle.

There is another form of constipation found with these cases, described by Hertz as dyschezia. In our roentgen studies we find the barium reaches the ampulla within twenty-four hours, but remains there for days. The abdominal muscles either lack the power to expel the feces, or the tightly contracted sphincter retains them. I prefer to use the more recently suggested classification of rightsided and leftsided constipation, instead of atonic and spastic. Leftsided constipation may exist without causing any symptoms. Rightsided constipation, on the other hand, owing to the absorption of poisonous products from the cecum, may give rise to marked symptoms of autointoxication. In a certain percentage of these cases there is also an open ileocecal valve, and the feces may regurgitate into the ileum. The worst cases of autointoxication I encounter are of this type.

Dr. Louis M. Gompertz, New Haven, Conn.: Three capsules each containing 10 grains of lampblack were given to thirty persons at different times during the day and the number of hours required for the appearance of the black in the stools was noticed. All of these persons were accustomed to having a movement of the bowels each morning. The result of this experiment showed that it required from twelve to fifteen hours before the lamp black could be identified in the feces. After this was done I took 100 cases of habitual constipation, just running through my records, without any attempt at selection, and noted the results of the gastric analyses. Eighty-seven of these cases showed hyperacidity while the remaining ones showed a subacidity or a normal gastric content. It has been pointed out by Schmidt and Strassburger that hyperacidity is an important factor in chronic constipation. It was explained by them that the hyperacidity causes a very perfect absorption of the foodstuffs in the intestines by diminishing the number and retarding the growth of intestinal bacteria, and on account of this a very small residue is left, and then there exists the condition known as spastic constipation. Since this investigation was brought about I have paid particular attention to the gastric conditions in chronic constipation and I have observed that in cases of spastic constipation the symptoms almost always point to hyperacidity in the gastric contents. Whenever the contents are examined, hyperacidity is often present, and I believe it to be an important factor in predisposing a patient to chronic constipation.

Dr. Max Einhorn, New York: In cases of spastic constipation we must rely wholly on symptoms from the beginning, so we must know what we are talking about. Spastic constipation is a variety of constipation which is characterized by too infrequent evacuation of the bowels, and pains during the defecation. Occasionally these fecal masses come out containing mucus and sometimes even a trace of blood. In the ordinary form of chronic, atonic constipation we do not find these symptoms. There is never pain combined with defecation, never mucus, or rather exceptionally do patients complain of that, and never any blood.

Dr. Morgan said that in almost all of these cases he found a normal position of the abdominal organs; in only two, I believe he said, was there any abnormality to be found. In my own cases, as far as I could see, where spastic constipation was present (the definition of this term to be applied as I expressed it) it was principally associated with marked enteroptosis. Again, I have observed that in these conditions hyperchlorhydria is not as often found as in the ordinary forms of constipation.

It is one thing to say that in cases of constipation we find these conditions present and quite another thing to say that these gastric anomalies produce the constipation. I tried to show in a certain variety of conditions of the stomach, hyperchlorhydria and achylia, that constipation in such cases may be caused by anomalies of the stomach. In that way I believed we would leave the constipation as it was and not pay attention to it, but simply give the patient a remedy appropriate to correct the gastric anomaly, and see what happened. It was found that in some of these cases the constipation improved by itself, and that is the reason why I felt that constipation in those cases was caused by a gastric anomaly.

Dr. Dwight H. Murray, Syracuse, N. Y.: I have some ideas about constipation and doubtless when I am through speaking you may think I have gone back to the dark ages, and perhaps the notions are foolish. With regard to the causes of constipation, I feel that I must disagree with what has been said about etiology. The primary causes of constipation, so far as I am able to ascertain from my practice, are three, namely (and these I published in 1911): carelessness, ignorance and laziness. You may smile, but let us consider the child from the cradle up. The mother does not understand the necessity of regular attention to this matter by the child. The child grows up without any knowledge of it; the child would rather play than go to the toilet. When he goes to school, he often leaves home without having had a bowel movement. Many children will put it off until the bowel eliminates itself in the underclothing. This thing continues until the child has grown up, and the symptoms (causes) we are talking about are the results, in my opinion, of a constipation that has been brought on by ignorance or carelessness.

I have patients who say that the mother, father, aunts, grandmother, all were constipated and that they have hereditary constipation. There is no such thing. Every normal man is born free and equal so far as muscular activity is concerned. I am not speaking of obstipation, but of constipation. I find that in every single instance when I mention these things to my patients they admit that they are careless.

A business man, for example, on account of engagements in his office neglects his morning bowel movement. A frequent repetition of this brings on chronic constipation and autointoxication. Such patients cannot produce the normal gastric and intestinal juices, and cannot furnish proper nourishment for any of the tissues, and later we begin to have rectal trouble as a result of constipation. Perhaps there is an ulcer in the rectum and then the vicious circle begins; we have the rectal pathology keeping up the constipation and it keeps up the rectal trouble. I believe we must be consistent and differentiate between the results of constipation and its causes.

Dr. Charles D. Spivak, Denver: Dr. Morgan's chart appeals to me greatly. We have not given enough attention to the recording of symptoms. We are gradually coming to understand that all the laboratory methods are not of as great importance as taking down and noting the symptoms that the patients themselves tell us. It may sound unscientific, but we have to learn our lesson from the surgeons who have found that a good history taken from the lips of the patient throws more light on the case than the laboratory can ever expect to shed, and that the initial symptoms, especially, are the things that give the most light. A simple question as to whether the pain came first and then the vomiting, or the vomiting first and then the pain, may change the diagnosis.

Something has been said with reference to the taking of food. The taking of less food is considered a factor in constipation. This is absolutely wrong. When we say "taking food" we mean food in quantities sufficient for that particular man or woman: What may be enough for me is not enough for some one else. I have found that the quantity of food has nothing to do with these cases; that is, that the taking of a large amount of food does not necessarily preclude constipation. I have seen people who eat a great deal and are constipated, and I have also seen women who are not eating enough and they are also constipated. Both are abnormal. People take more food than they should, and when the quantity of their food is reduced their constipation as a rule ceases. There surely must be a mechanism by which this superfluous quantity of food put daily into the stomach starts the inhibitory function of the bowels. As soon as the food is reduced to the normal the natural inclination of evacuating the bowels starts.

Dr. Nathan Rosewater, Cleveland: Dr. Morgan's instructive paper demonstrates that there is no uniform acidity whether movements are regular or not. In my paper on enteroptosis, in 1900, I cited cases of superacidity or subacidity resulting alike in cures following abdominal plaster bandaging, whereas only symptomatic relief followed treatment by neutralization, thus convincing me that many superacidities and subacidities resulted from enteroptosis. I have often observed constipation and head cold occur the next day after loss of sleep from a night call. Tracing these sequences to loss of sleep, resulting in insufficient peristalsis, I always avoid them by taking a laxative before going to bed. Insufficiently resting the nervous system tends toward peristaltic insufficiency; conversely, sufficient rest and sleep maintain the efficiency of the regulating mechanism.

With Dr. Spivak I must differ about humoring those who have no appetite for breakfast. Surely the stomach is empty; nervous muscular and glandular systems have rested much longer than for the other meals. These patients mostly awaken with "that tired feeling" of all their muscles, external and internal. Their muscles of mastication and deglutition, and also the stomach musculature *feel* tired. I insist they must and can eat a good breakfast.

Dr. David Bercinsky, New Haven, Conn.: From what I have heard here this morning I have received the impression that it is not necessary to bring any special proof to bear out one's statements. I will therefore say a few words in reference to the opinion of the previous speaker that constipation is a result of ignorance and negligence and that the speaker was surprised when he heard patients say that constipation was hereditary in their families. I do believe that there is a form of constipation which is entirely dependent on heredity; that it is not always ignorance or lack of care behind it. At least, I have had cases which convinced me of this.

Now, if we do inherit anatomy, why is it not possible that we may inherit abnormal physiology just as well as normal physiology. Inasmuch as constipation or normal evacuation of the bowels depends on the nervous rhythm of the intestinal peristalsis, this peristaltic rhythm may be individual and characteristic in certain families as a hereditary trait.

Dr. William G. Morgan, Washington, D. C.: I did not consider or think I had the right to consider the etiology and treatment in this paper. If I had not unwittingly further contracted the scope and limit of this paper by confining it to spastic constipation, and had considered the gastric conditions in chronic constipation, the small diagram shown would probably have been quite different; and, as one of the gentlemen who discussed the paper pointed out, hyperacidity would have stood well at the head, and as Dr. Einhorn also pointed out, visceroptosis would probably have had a prominent position.

I agree with Dr. Murphy on the three causes for simple constipation. I think that is borne out by any one who takes the trouble to investigate the previous habits in these conditions, and it is in this type that the Christian Scientists claim to cure and do cure, and it is this one disease more than any other which brings to them such an enormous following, and in which they assert the patients often have been to fifty good practitioners but still have their constipation unrelieved. Dr. Einhorn a great many years ago pointed out the best treatment in this class of cases when he said: "Do not think so much of your bowels. It does not make much difference if they do not move for two of three days." Don't let your patients think that their constipation, or chronic constipation, is a thing of serious import. A little regulation of diet, and a total absence of medicine and enemas, and allaying the fear of enlarged joints, or brain disease, or epilepsy, or old age as a result, and a large percentage of these patients will get well of their constipation and will be almost as grateful to you as they are to Christian Scientists.

THE RECTANGULAR FLAP INCISION FOR OPERATIONS WITHIN THE UPPER ABDOMEN*

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The last decades have witnessed an increasing tendency of operative surgery to emancipation from the time-honored rule of placing the skin incision parallel to the longitudinal axis of the body.

Trendelenburg's transverse incision for operations within the bladder (1882) was one of the forerunners in this direction.[1] Later followed Pfannenstiel's[2] suprasymphyseal transverse incision of skin and fascia with median division of the deeper tissues for operations on the uterus and its adnexa (1898). In 1910, Sprengel[3] of Brunswick demonstrated the advantages of the transverse direction of the incision in abdominal operations. He emphasized that the broad aponeurotic expansions of the three flat abdominal muscles which join and interlace with those of the opposite side in the median line, forming the linea alba, represent the tendinous termination of these muscles. If the latter contract, the many fine, little, tendonlike fascicles and fibers of these aponeuroses are put on the stretch and pressed together. Consequently, a transverse abdominal incision, which divides the aponeuroses in the direction of their fibers, had the physiologic tendency to *approach* the wound borders, while a cut perpendicular to the direction of their fibers, that is, a vertical cut in the direction of the longitudinal body axis, had the physiologic tendency to make the wound borders *gape*. However carefully stitched up, the tendency of the borders of a longitudinal wound during healing, particularly at times of sneezing or coughing, was to separate. Hence the observation, occasionally made, of a reopening of such a longitudinal abdominal incision, if the catgut used for layer sutures had become absorbed or burst, or retaining silkworm-gut sutures of skin and fascia have been removed too early. Hence, also, the placing of fascia retention sutures in the shape of the figure of 8 and otherwise, left in place for two weeks.

Within the last few years more interest has turned to this question also on this side of the Atlantic. A number of articles have appeared dwelling on this subject; Farr,[4] Moschcowitz,[5] and Meyer[6] have called attention to the decided advantage of the transverse incision. On suturing the wound with catgut in layers, a reopening will hardly ever occur.

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* Read before the Section on Surgery, General and Abdominal, at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

1. Meyer, Willy: Arch. f. klin. Chir. (Langenbeck's), 1885, **31**, 494.
2. Pfannenstiel, Joachim: Klin. Vortr. (Volkmann's), 1900, N. F., No. 268.
3. Sprengel, Otto: Arch. f. klin. Chir. (Langenbeck's), 1910, **92**, 536.

Furthermore, even in the event of suppuration following contamination of a transverse wound of the abdominal parietes, it will be seen that the deepest continuous suture line embracing peritoneum plus transverse fascia and posterior sheath of the rectus muscle will hold. The abdominal cavity remains safely closed. Only in one instance have I seen an exception, and that was in a patient who, after an operation on his stomach, developed what seemed to be a typical tetanus, in all probability due to catgut infection. Here, with the boardlike hardening of the abdominal wall, the entire wound, inclusive of the peritoneum, reopened; reclosure with strong silk sutures, through-and-through, proved a difficult task.

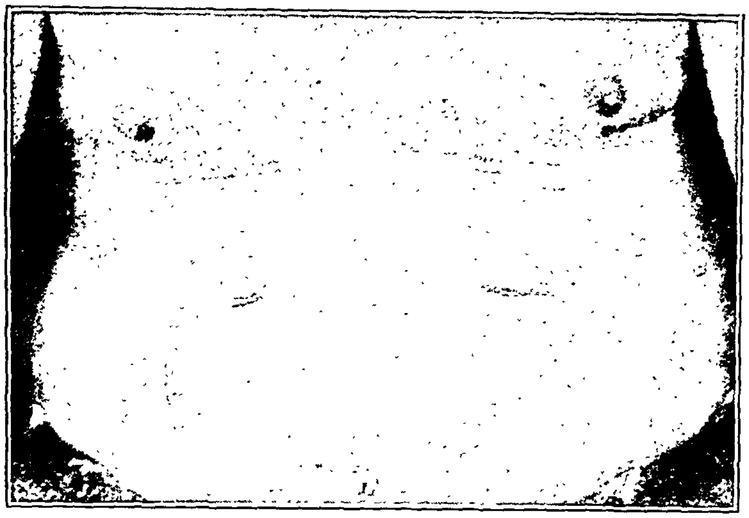

Fig. 1.—Rectangular flap incision with a downward sweep of the right half of the cut within and parallel with the fibers of the right rectus muscle. Case of suspected duodenal ulcer. Appendix only found diseased and adherent in the pelvis.

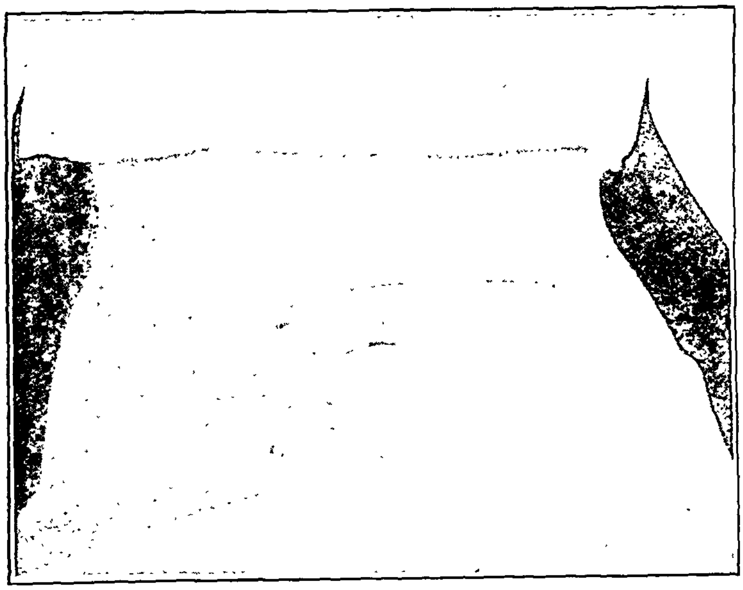

Fig. 2.—Same incision as described in Figure 1, used in a case of sarcoma of the cecum with abdominal and retroperitoneal metastases above and below the umbilical line.

Necrosis of the fascia, not infrequently seen after the perrectal incision, in the case of infection within the abdomen, occurs rarely when the transverse incision is used.

However, a surgeon, making use of the transverse abdominal incision in his daily routine work, cannot help noticing a number of drawbacks or rather defects of this incision. For instance, if the cecal region needs exploration and the patient has a long stretched abdomen, it will often not be easy to pull the parts up into the transverse wound above the umbilicus. Here a turn downward of the right extremity of the incision *within* the rectus muscle, with the possibility of lengthening this part of the incision downward to any desired extent, has proved a good combination in my hands. (Figs. 1 and 2.) For this reason, it is wise not to divide completely the right rectus muscle in the transverse direction. One can then always add the turn and downward sweep, should this indication become apparent in the course of the operation. This rectangular flap incision, with the short leg running downward, has given excellent results in three different cases. It can, of course, be employed equally effectively to the left of the median line, as I had occasion to observe.

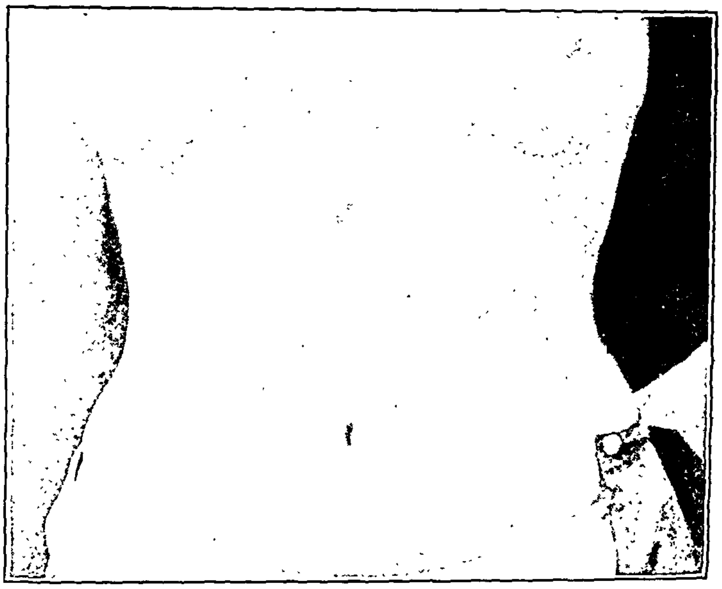

Fig. 3.—Steeply rising borders of the costal arches; they are marked with strips of adhesive plaster.

Further, when employing the transverse abdominal incision for work in the upper abdomen, particularly in gallbladder surgery, the surgeon will notice off and on that the exposure is unsatisfactory. The cause usually is a steep incline of the costal arches (Fig. 3). An additional incision in the median line down to, but not including the peritoneum, will then have to be added to make the upper border of the wound yield; or a horseshoe incision with straight shanks which divides the recti muscles obliquely instead of horizontally (Fig. 4) must be made from the start. It will also be seen, when using the transverse incision in gallbladder surgery, that not infrequently the liver border cannot be turned up well, the step so helpful in some operations of this type.

I have, therefore, particularly since 1915, more frequently made use of the rectangular flap incision also for operations within the upper abdomen, more specifically for operations within the upper right abdomen, namely, explorations of and operations on the gallbladder and bile system. Thus far, only one case has presented itself in which the indication for employing the incision on the left side of the median line could be found.

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[4] Farr, R. E.: Journal-Lancet, November, 1912; Am. Jour. Surg., September, 1915.

[5] Moschcowitz, A. V.: Tr. New York Surg. Soc., Ann. Surg., 1915, p. 495; Am. Surg. Assn., 1916, p. 213.

[6] Meyer, Willy: Ann. Surg., November, 1915.

It is on the basis of this experience that I wish to make a few brief remarks.

There are two different types of this approach: In the one, *all* the layers of the abdominal wall are divided through the same line of incision. In other words, all the tissues that make up the abdominal wall, inclusive of the posterior rectus sheath, transversalis fascia and peritoneum, are turned up in the shape of a rectangular flap (Fig. 5). It is self-evident that thereby the innervation of the abdominal muscles is not interfered with, as only fascias are cut and the muscle substance is divided transversely in the direction of the course of the nerves.

This is the method proposed by Koenig[7] and Kehr.[8]

In the other type of incision only a rectangular *skin-muscle* flap is raised, which includes skin and subcutaneous fat plus the anterior sheath of the rectus muscle and a portion of its belly in the line of the skin incision, while the transversalis muscle and transversalis fascia with the posterior sheath of the rectus muscle—which is made up in this portion of the abdomen, in part at least, by the united aponeuroses of the transversalis muscle and posterior lamella of the aponeurosis of the oblique—plus peritoneum are incised in the oblique direction parallel and in front of the costal arch (Wechselschnitt). The intercostal nerves which feed the muscle substance of the rectus are always clearly exposed and here, too, absolutely preserved. (Fig. 6.) This is the method proposed by Perthes.[9]

1. *Koenig-Kehr Incision.*—When forming the typical rectangular flap by the Koenig-Kehr incision, the surgeon can most advantageously start the incision within or next to the median line (right or left), close to the xiphoid process, and then divide all the tissues of the abdominal wall nearly down to the level of the umbilicus. From this place, when the rectangular turn is rounded off, the skin with subcutaneous fat is divided in a horizontal direction to about the anterior axillary line. Before the outer part of the rectus muscle is divided, its substance can be first fastened to the anterior rectus sheath by the two rows of catgut sutures as employed in the typical transverse incision by Perthes (Fig. 7); the muscle is then divided between them (Fig. 8). If the surgeon prefers, these sutures can be omitted. Then the posterior sheath of the rectus with the peritoneum are divided in the same transverse line.

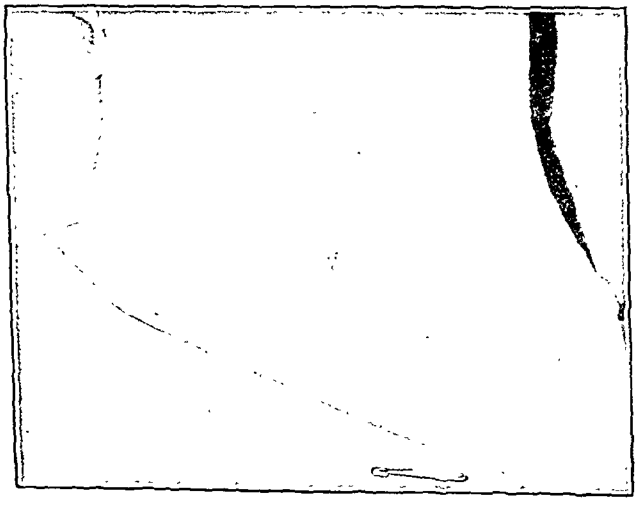

Fig. 4.—Horseshoe incision. Both recti muscles were divided obliquely, parallel with the steep costal arches in a case of gastro-enterostomy with pyloric exclusion for duodenal ulcer.

The access obtained by this incision is an excellent one. Should intra-abdominal conditions require the insertion of drains, these are made to emerge at either the upper or the lower angle, as may be deemed best in the individual case. The suture of the wound is somewhat difficult, but entirely feasible.

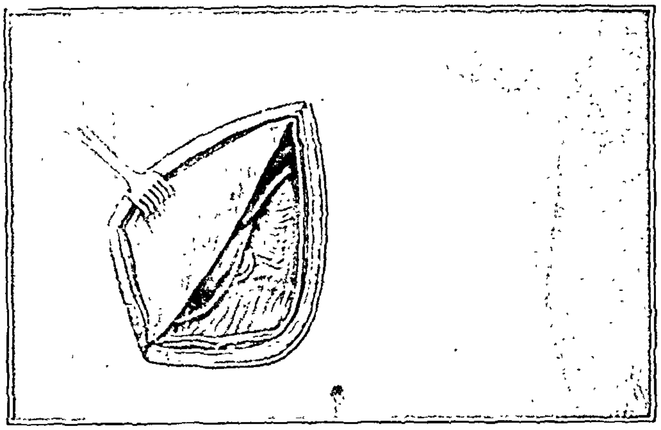

Fig. 5.—Koenig-Kehr incision. All the tissues that make up the abdominal wall are divided in a rectangular line. Sharp retractor pulls on the parietal peritoneum.

2. *Perthes' Incision.*[10]—There is the same arrangement of the rectangular skin incision (Fig. 9), and of the longitudinal part of the cut as in Type 1 (Koenig-Kehr incision), but only down to, not through the posterior sheath of the rectus and peritoneum.[11] This part of the incision requires some care. In women who have gone through a number of pregnancies, the posterior surface of the rectus muscle often forms a firm unit with the thin aponeurotic structures and the peritoneum, all blended into one, rather atrophic, layer. Before the surgeon is aware of it, the peritoneal cavity is opened in the longitudinal, oftener in the transverse part of the incision, or in both, an irritating occurrence, since the hole has to be stitched up, and sometimes it will render impossible the intended division of the deeper layers in an oblique direction.[12] To avoid this accident it is advisable not to start *too* close to the median line and to divide the muscle fibers bluntly, with the handle of the knife. At the lower end of the longitudinal muscle division, just above the umbilicus, the second finger — better the second and third fingers — of the operator's pronated left hand are gently pushed between the muscle substance and its posterior sheath, until a resistance is felt at the outer turn of the rectus sheath (Fig. 10). With the two fingers in position, the two horizontal rows of surrounding catgut sutures are put in place (Fig. 10), the operator's fingers protecting the peritoneal cavity from

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7. Koenig, Fritz: Centralbl. f. Chir., 1912, No. 16, p. 529.
8. Kehr, Hans: Arch. f. klin. Chir., 97, 74.
9. Perthes, G.: Zentralbl. f. Chir., 1912, No. 37, p. 1252.

10. During the reading of the paper, the various steps of the operation were discussed with a *motion picture*.

11. If the costal arches *rise steeply*, the incision begins close to the xiphoid process and runs at first parallel with the costal arch. As soon as the place about 0.75 to 1 cm. distant from the median line has been reached, the knife turns downward as shown in Figure 9 (see Fig. 3). This additional incision upward can also be made in the course of the operation, should conditions require more room to do the work.

12. In two patients, one, a very fat man, and the other, a woman who had passed through *many pregnancies*, I found a ventral hernia, the posterior rectus sheath presenting quite a tear. With some care, this fascial hole could be nicely closed by means of a continuous suture, and then the operation continued.

being injured by the needle. The sutures are tied by the assistant, rather tightly. Between them the muscle is cut through (Fig. 11). Usually there is no bleeding at all, thanks to the efficient work of the transverse retention sutures, which not only prevent the retraction of the rectus fibers, but act as a prophylactic hemostatic. For that purpose, the assistant on tying these sutures has to pull on them firmly before knotting. Should the epigastric artery still bleed, it is wise in every instance first to secure and tie the few remaining bleeding points, which is best accomplished with a clamp with a rounded tip (von Bergmann's). Now a sharp retractor raises the skin muscle flap, while, with a gauze mop, the operator separates the muscle from the underlying aponeurotic structures toward the costal arch. Soon the two intercostal nerves with their concomitant blood vessels come into view. About one third inch (1 cm.) in front of these and parallel with the costal arch, the abdominal cavity is incised (Fig. 6).

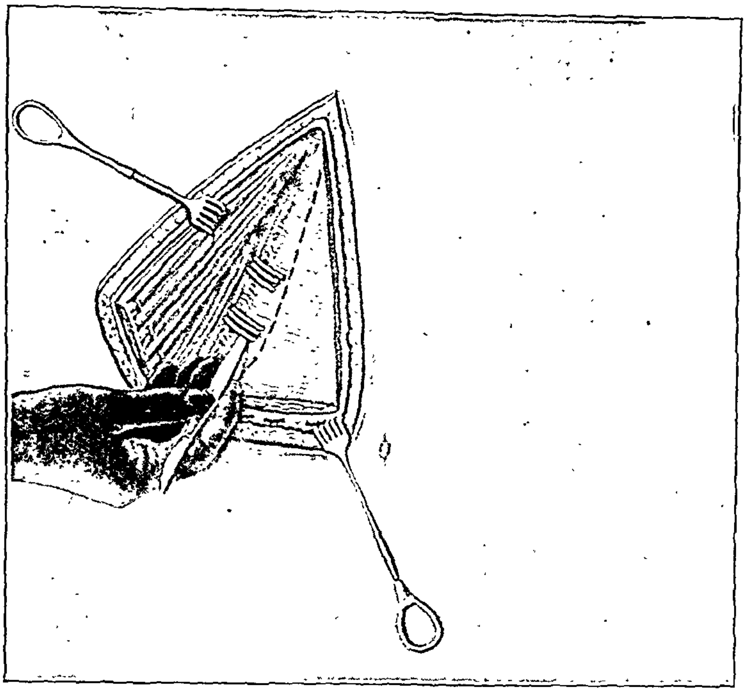

Fig. 6.—First step of Perthes' incision. Rectangular skin muscle flap raised, and costal arch exposed. Two intercostal nerves with their concomitant blood vessels that feed the rectus muscle are clearly in view. Right in front of their exit from the posterior sheath of the rectus, an oblique incision is made parallel with the costal arch.

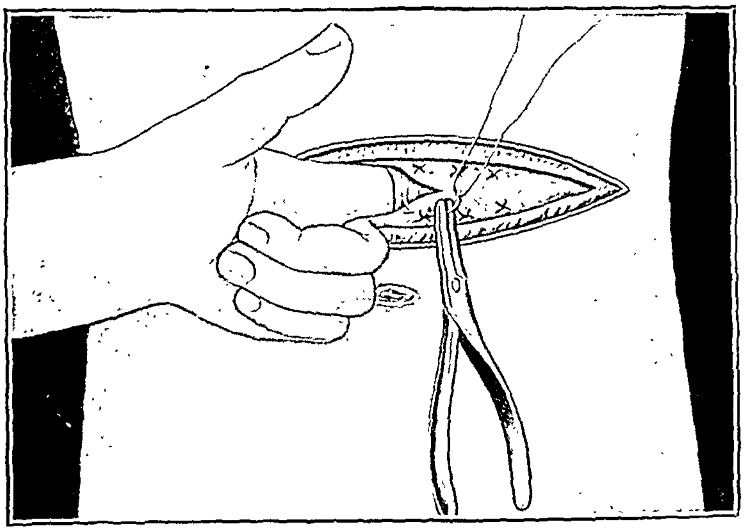

Fig. 7.—Transverse abdominal incision. Left forefinger introduced through a peritoneal buttonhole and three catgut sutures placed above and below with a round curved needle in a horizontal line about 1 cm. apart.

Advantages.—The principal advantages of this abdominal incision are:

(*a*) Wide access is gained to the upper abdominal cavity, much better than by the longitudinal or transverse incision (Fig. 12).

(*b*) There is the same preservation of the muscle innervation as in Type 1, a factor which gains in importance in strong muscular male patients.

(*c*) The incision through the posterior sheath of the rectus and the peritoneum, down to its lower angle, *is nowhere in the same line with the skin incision.* It is situated on a higher level and runs in a different direction than the transverse cut dividing the anterior sheath of the rectus and the muscle, a point which greatly adds to the firmness of the resulting abdominal scar, and thereby guards against the occurrence of a ventral hernia, even in suppurative cases.

(*d*) The oblique cut through the transverse fascia and peritoneum usually meets the very border of the liver, or, in cases of ptosis, its convexity, same as the *Courvoisier incision, which practically* runs in the same direction as the oblique cut in the Perthes incision; however, it divides *all* the layers of the abdominal wall in one and the same line, including the nerves. The liver can be turned upward or pulled out in front of the abdominal wall, as the case may require and the fixation of the liver will permit (Fig. 12).

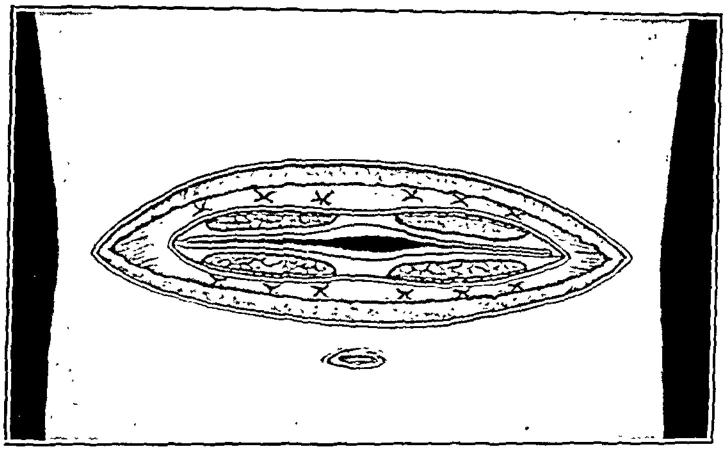

Fig. 8.—Division of the rectus muscle. Both muscles are severed in the transverse abdominal incision, between the two rows of transversely placed catgut sutures *which fasten the muscle substance to the anterior* rectus sheath and act at the same time as efficient hemostatics for the divided epigastric artery and its branches.

(*e*) The small intestines do not crowd into the wound; usually only the omentum and the colon (hepatic flexure), or the omentum, the colon and the pyloric end of the stomach with the duodenum come into view. The small intestines remain protected; less packing is required.

(*f*) On the left side of the median line, the additional cuts made through the seventh costal cartilage near the sternum and from the seventh to the tenth individual rib cartilages near their junction with the bony substance, as needed for the osteoplastic raising of the costal arch (Marwedel) in stomach operations near the cardia, are rendered easier than in Type 1. The costal arch is to be approached in this osteoplastic operation *underneath* the belly of the rectus muscle and *above* the transverse fascia. Here it can be easily and thoroughly exposed (Fig. 13).

Through this abdominal wound, made on the right side, a careful inspection and palpation of the entire length of the stomach, pylorus, duodenum, liver and gallbladder and pancreas are, of course, possible; that is to say, all the organs of the upper abdomen which usually interest the surgeon. Any other desired palpation within the abdomen can also be carried out. In the great majority of the cases, also in patients with steep costal arches, the appendix can be nicely reached and removed, and additional operations on the stomach, for example, gastro-enterostomy, pyloric resection, etc., can be done at the same time.

Should still more room be needed, the horizontal part of the skin wound is somewhat lengthened outwardly, and the three abdominal muscles bluntly separated in the direction of their fibers, as in McBurney's intermuscular incision for appendicitis. If this intermuscular wound is properly held apart, the opening in the posterior sheath of the rectus muscle and peritoneum can be materially increased. I should also think, although I have so far never tried it, that in case of necessity there is no objection to lengthening the longitudinal part of the incision downward, or carrying the horizontal part of it across the median line to the opposite side (Fig. 14), although it seems to me that such a procedure would not be particularly good surgery.

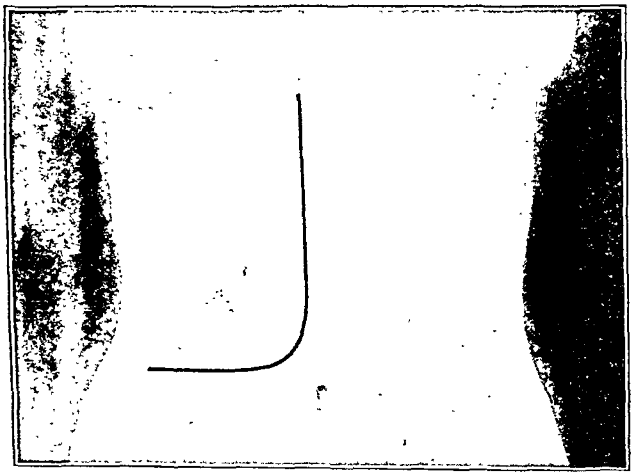
Fig. 9.—Perthes' incision. Line of skin division.

The contents of the small pelvis can, of course, be thoroughly palpated through this incision, but operations on its organs will require a separate incision.

CLOSURE OF THE WOUND AND AFTER-TREATMENT

In closing up, it seems best to bring out the material used for drainage at the upper angle of the wound (Fig. 15). If the hepatic or common duct needs drainage, the normal downward direction of the bile current will induce the operator to make the exit for the drainage tube at the lower (outer) angle.

The suture of the oblique wound of the posterior sheath of the rectus and peritoneum—which tissues are frequently rather thin—to secure best results should commence at the angle which does not harbor the drainage. When this continuous, not interlocking, catgut suture is placed, the patient who, during the intra-abdominal work, has usually been but lightly under the anesthetic, should again be more deeply narcotized up to complete relaxation, and then the upper part of the body raised either by a sandbag or by means of an arrangement of the operating table. If the patient strains, these tissues may tear, although they are strong and resistant, and yield excellent material for safe and reliable union. Should this happen, the tear will nevertheless usually run from the oblique wound in a transverse direction toward the median line, and can be well closed by a few interrupted stitches, after the longitudinal cut has been closed up to the tear, the operator having started the suture from both ends (Fig. 16).

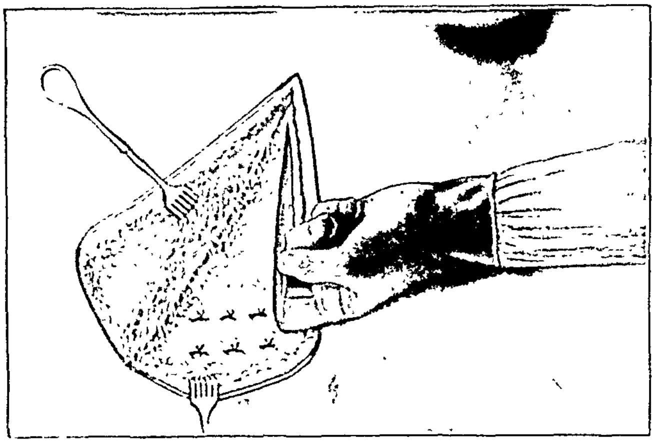
Fig. 10.—Rectus muscle divided bluntly near the median line and in the direction with its fibers. Near the umbilicus, two fingers of the operator's pronated left hand are gently pushed between the substance of the rectus muscle and posterior sheath. Double row of catgut sutures in place, about 1 cm. apart, each completely embracing and compressing a portion of the muscle.

In my last cases, I have sutured the oblique wound in front of the costal arch from above downward, irrespective of the drain exit, because the material to be stitched is more voluminous above than below (transversalis *muscle*, plus fascia and peritoneum), and thus less liable to tear, even if the patient should strain. By close attention, irregularity of the two sides and injury to the abdominal contents in closing the outer angle of the wound can be avoided.

The abdominal cavity having thus been closed, two rubber tissue cigaret drains are placed on top of the transverse fascia—a step of importance because this space must be drained. They emerge at the lower angle of the wound (Fig. 15). Then, the anterior rectus sheath is stitched up (Fig. 15). A clamp, originally placed at the curve of the wound in the anterior sheath of the rectus, will prove of great help in suturing this fascia neatly. One interrupted stitch is first placed at this spot with its ends left long.

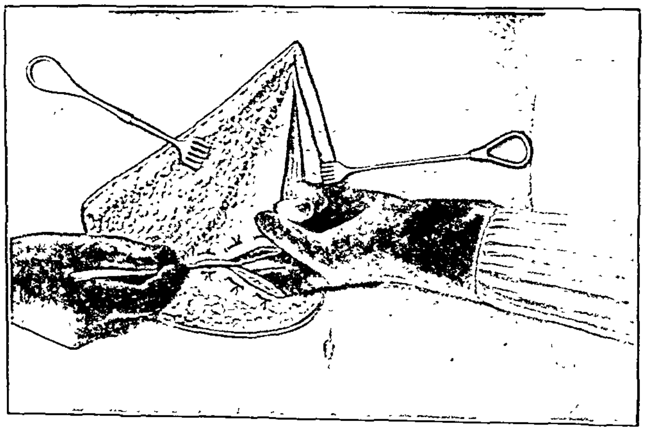
Fig. 11.—Muscle being cut through transversely between the two rows of transverse sutures.

In the longitudinal part of the fascial wound it is sufficient for the needle to catch the wound border internally with some additional muscle tissue externally. When the single suture at the curve is reached, the longitudinal suture is knotted with one of its ends. Another continuous suture is then started.

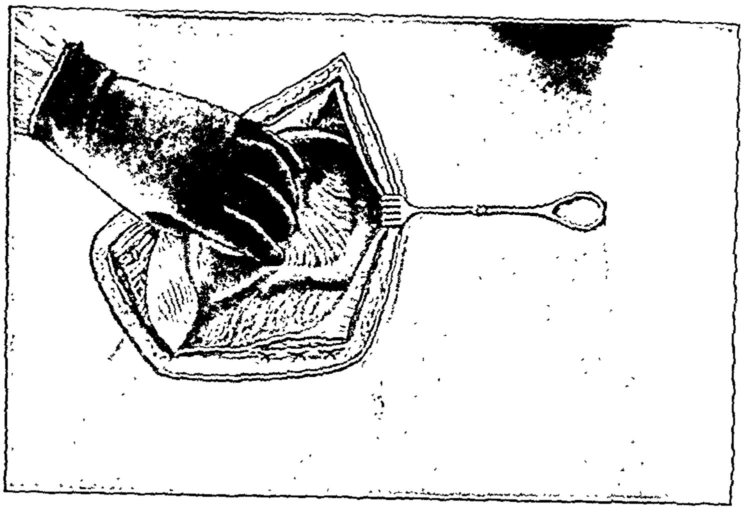

Fig. 12.—Second (oblique) incision finished. Wide access to the liver, gallbladder and bile-ducts and other parts of upper abdomen.

In the transverse portion of the incision, needle and thread take the transversely placed two rows of fascia-muscle sutures in their grasp (Fig. 15). The skin flap is secured by a few silkworm-gut sutures, and the wound is closed by means of a running suture of fine catgut or silk (Fig. 17). After the patient has reached the bed he is placed in a pronounced right-sided Syms' position for the first twenty-four to thirty hours. This position favors drainage and the rapid attachment of the skin-muscle flap to the deeper layers. I have been using this posture for many years in all cases of cholecystectomy, drainage of the bile ducts, perforative appendicitis, etc., requiring drainage, to my greatest satisfaction and benefit to the patient.

PERSONAL EXPERIENCE

Thus far I have made use of the two types of rectangular incision in a rather limited number of cases.

The through-and-through cut (Koenig-Kehr) I have tried but three times; once, a number of years ago in a case of cholecystectomy; the second time, in a patient with suspected duodenal ulcer, when an unintended division of the peritoneum, in the line of the transverse cut, frustrated the contemplated Perthes incision, in which case only a diseased appendix was found and removed; the third time, in a case of cholecystectomy in a multipara, in whom, when the muscle was being bluntly separated from its posterior sheath, the abdominal cavity was unintentionally opened in the perpendicular as well as the horizontal part of the incision.

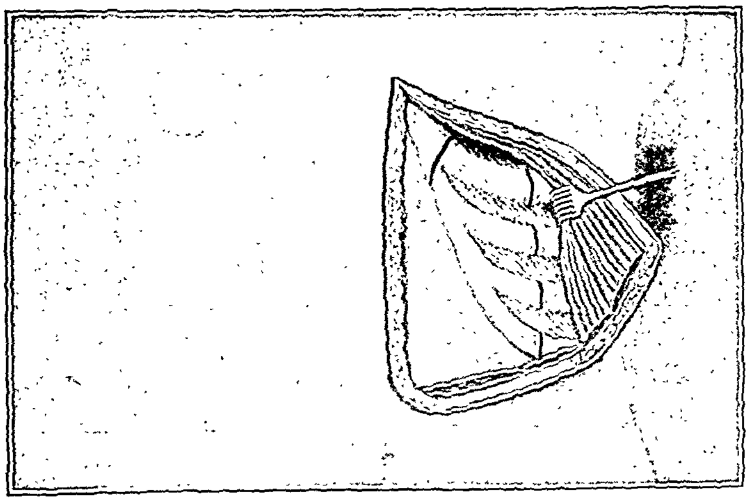

Fig. 13.—Easy approach in Perthes' incision to the left costal arch for making the division of rib cartilages for the osteoplastic lifting of the arch in operations at or near the cardia (diagrammatic).

The typical Perthes incision which was designed for operations on gallbladder and bile ducts has been tried by me in twenty-one patients,[13] in the majority of whom cholecystectomy was done; in one case, additional choledocholithotomy, with subsequent hepaticus drainage, had to be carried out; in two instances, it was employed as a useful entrance for exploration with added appendectomy; once, a subhepatic abscess consecutive to a duodenal ulcer was found.

Perthes himself, at the time of his publication, had tried it in sixteen patients; he praises its advantages.

The number of patients thus far operated on is not large. Still, the number has been sufficient to convince me of the real value of the rectangular flap incision. The Perthes incision, in particular, with the excellent access it affords and the easy closure of the wound, represents a valuable addition to our resources. The strong muscles of an athlete can be thoroughly preserved by it. Not the slightest weakness of the abdominal wall results. There is less tendency to hernia, even in suppurative cases.[14]

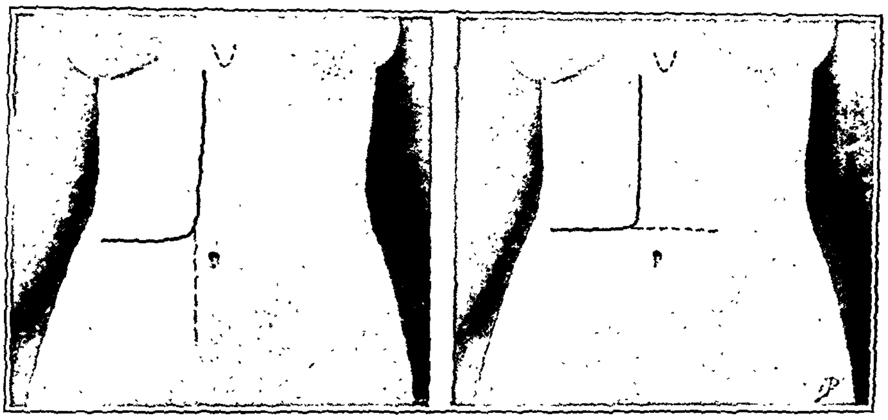

Fig. 14.—Lengthening one leg in the rectangular incision beyond the curve, either way, in case of emergency. (Method not tried; questionable surgery).

In view of the possibility of thorough inspection and wide access to all organs within the upper abdomen, and also our ability usually to remove the appendix easily through Perthes' incision, it seems to me the better policy in many cases of exploration to reverse the usual advance, that is, to cut down oftener on the gallbladder through this incision, palpate and inspect systematically the respective organs, and remove the appendix from this wound, rather than proceed in the opposite direction. The palpating hand pushed up through an appendicular incision can, of course, *feel gallstones*, but it cannot detect, as the operator can by direct visual examination through the rectangular incision, distended bile ducts, adhesions of gallbladder and ducts with neighboring organs, or view the actual condition of duodenum, pylorus, etc.

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[13] Since this paper was read, one additional operation has been carried out, making in all 22 cases in which the Perthes incision was employed.

[14] In one patient, in whom cholecystitis was suspected in addition to a duodenal ulcer, a subhepatic abscess (streptococcus infection) was encountered. The gallbladder rested on the posterior parietal peritoneum and did not require removal. Here the space beneath the skin-muscle flap was temporarily drained with gauze tamponade and several rubber tubes. Although in the course of the following purulent discharge from this wound, the transversely sutured portion of anterior rectus fascia with muscle substance became necrosed and was pushed off in the shape of a sequestrum, an abdominal hernia did not follow. This observation is in agreeable contrast to the experience which occurs now and then, that necrosis of the anterior rectus fascia with some muscle substance, following the perrectal longitudinal incision for infected intra-abdominal troubles, induces the formation of a ventral hernia.

In other words, by employing the appendix incision the surgeon can only palpate the condition of the organs of the upper abdomen; whereas in the rectangular Perthes incision he can palpate *and inspect*, insuring at the same time a perfect reconstruction of the abdominal wall.

Of course, the rectangular flap incision has not lately been exclusively made use of by me for all operations within the upper abdomen. Quite often the usual longitudinal perrectal approach was selected on either side of the median line, particularly in the female sex and in cases of acute infection demanding quick and immediate interference. Still oftener the typical transverse incision was favored. However, the more I have seen of the advantages of the Perthes incision, the more I feel inclined to try and let exploratory incisions and selected stomach affections also be benefited by it. It will be seen that work near the cardia especially can be made easier by this incision, inasmuch as the osteoplastic resection of the costal arch, as mentioned in the foregoing, appears to be a logical addition.

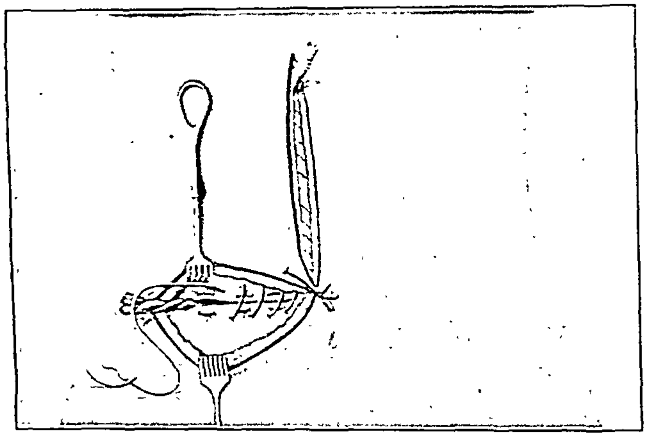

Fig. 15.—Rectangular incision being closed. Rubber tissue drain in bed of gallbladder, covered by the two sutured peritoneal flaps retained from the same, emerges at the upper angle of the wound. (A cigaret drain reaching down close to the ligated cystic duct is added in every case.) Longitudinal part of incision is closed, the transverse one in process of suturing. The thread embraces the transverse sutures. The fixating suture of the angle has been indicated by the artist. It should catch the fascia, not the skin as shown in the illustration, and the skin muscle flap should still be reflected. When suturing the skin, this corner stitch will be found of the same benefit as when closing fascia.

Nevertheless, let us remember that these rectangular flap incisions are only an addition to our operative resources. No one incision represents a panacea. We must adapt the incision to the individual case, and not the case to the incision.

The surgeon will act wisely if he becomes thoroughly acquainted with all types of abdominal incisions that have been found to be of value and present advantages for certain conditions.

700 Madison Avenue.

ABSTRACT OF DISCUSSION

Dr. Robert E. Farr, Minneapolis: For the past six years I have not made a vertical incision above the navel. Two or three points I wish to take up in particular:

1. In relation to the retraction of the rectus muscle after incision is made, there is no reason for putting in the sutures except for the purpose of hemostasis. Measurements made in 150 of my cases show an average of 1 cm. of muscle projecting past the fascia, without a single exception. If this muscle does not project from above, it will project from below; our measurements have shown no variation in this respect. A coaptation of the posterior and the anterior fascia always brings the red meat together.

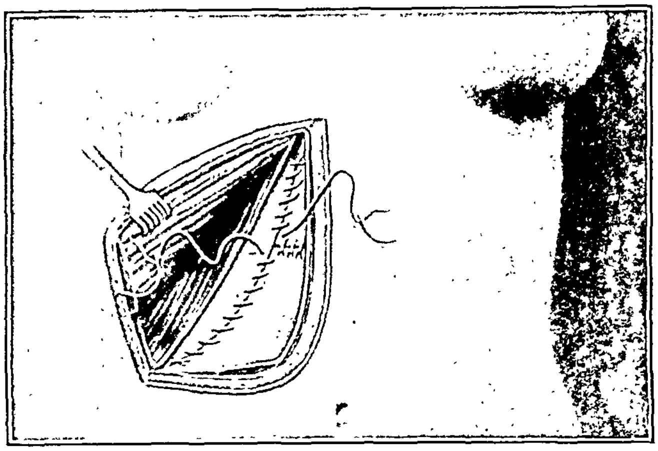

Fig. 16.—Transverse tear in the upper half of the oblique incision. It can be nicely repaired by first closing the main incision, suturing from either end with two needles toward the tear.

2. Unquestionably there is more hemorrhage in these cases than when vertical incision is made, but to my mind this is an indication that they will heal better, just as there is better healing in the tissues of the face because of their great vascularity.

3. The researches of Quain of Bismarck, N. D., at the University of Minnesota, showed that when the pararectus incision was made, cutting off one, two or three of the thoracic nerves, abdominal adhesions resulted between the visceral and parietal peritoneum. In the control cases, in which the nerve supply was conserved, no such adhesions were found. This seems to me to be a very important piece of research.

4. In the matter of drainage I differ from Dr. Meyer in that I place the drainage well back, far to the right. To bring out the drain where Dr. Meyer does, the incision must be made further to the left. I like the transverse incision which extends a little past the midline and is then joined by a vertical incision. In two of my cases, in which both the vertical and transverse incisions were made, hernia occurred in the vertical, while the transverse held. Sprengel, also, has reported two such cases.

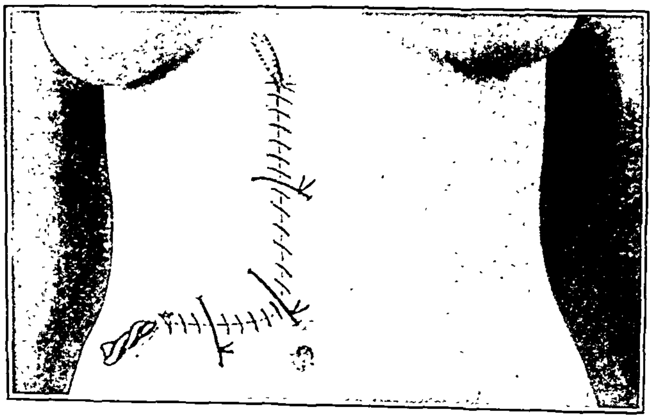

Fig. 17.—Silkworm-gut is used for retention of corner of the skin flap. The same is placed in the middle of the long and short leg of the cut.

Dr. Fred B. Lund, Boston: I have been trying the transverse incision and have found that one cannot get the liver out so well as with the oblique incision. It is so easy to sew up the transverse incision that at first you think you will not do anything else as long as you live. The long oblique incision, however, brings out the liver better. A combination of the two comes nearest to the ideal in a certain number of cases.

Dr. Willy Meyer, New York: I consider this rectangular flap incision to be entirely different from the transverse *incision. In gallbladder surgery in particular I would* prefer the rectangular flap incision. The retention sutures through fascia and muscle I consider an advantage. This incision can just as well be used in the left side. Particularly in operations near the cardia one will find it giving splendid access. I have employed it so far in one case only and could well work close to the cardia. Access can be further improved by an osteoplastic operation on the costal arch. Of course we will not adhere to any one incision, neither the transverse, nor the longitudinal, nor to the rectangular flap; I think we should practice them all.

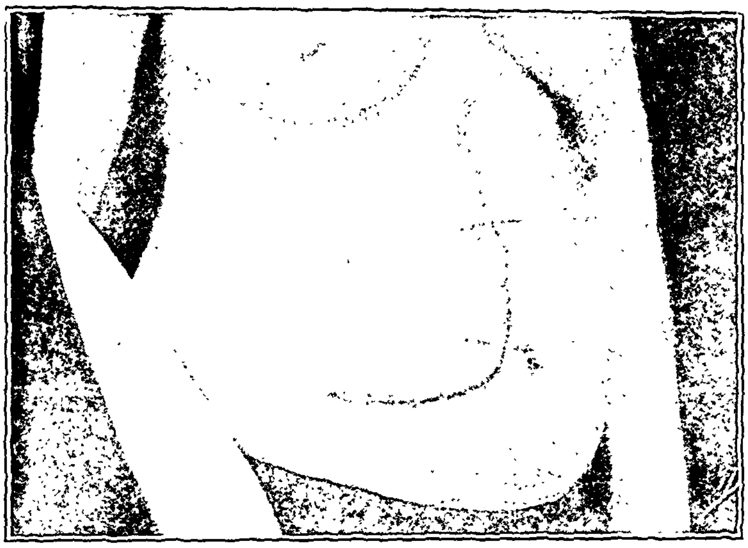

Fig. 18.—Final result. The short transverse scars mark the place of the two upper silkworm-gut skin sutures which had grasped the anterior sheath of the rectus muscle and were left in place for ten days. Securing the fascia in this manner usually is unnecessary, because the two cuts that make up Perthes' incision run at different levels and *in different directions, the skin-muscle flap* covering like a cap the entrance into the peritoneal cavity.

INTRAVENOUS FOREIGN PROTEIN IN THE TREATMENT OF PSORIASIS *

FRANCIS J. SCULLY, M.D.
Research Fellow, Cook County Hospital
CHICAGO

In the treatment of chronic skin diseases which often resist the usual therapeutic measures, any new method of therapy that causes a more rapid and effectual disappearance of the lesions is worthy of investigation. This is particularly true of psoriasis, which is widely prevalent, and many times resists our best efforts to clear up the lesions. On account of its obscure etiology most forms of treatment have been used empirically, which probably accounts for the great variety and diversity of the methods employed.

Chrysarobin, first used by Keith in 1877, is probably the best known remedy, but possesses many disadvantages and does not always relieve the chronic cases. In treating these obstinate cases, strong preparations of chrysarobin have been used; but on account of the dermatitis produced, they could not be applied for long periods of time, necessitating an interrupted and long drawn out course of treatment. Chrysarobin also has the disadvantage of staining the clothing, linen and skin with which it comes in contact. Therefore, any method which will obviate or shorten its use will be of particular value.

Since the exact action of chrysarobin is not understood, it has been difficult to determine what measures will augment its curative effect. The research of Schamberg, Ringer, Raiziss and Kolmer[1] has shown that it has a marked affinity for the proteins of the lesions, especially the scales, but apparently has no germicidal activity. In connection with this study, they also noted that there is a nitrogen retention in psoriasis; however, a restricted protein diet has been tried with only limited success.

In the last four years, intravenous injections of autogenous serum have been employed. At first, this was advocated by Gottheil and Satenstein[2], Fox[3] and Hilario[4] as being a very reliable and efficacious method in the obstinate and resistant cases, though later reports by Fox,[5] and Trimble and Rothwell[6] indicate that it is successful only as an adjunct to former methods of treatment. Along the same line, Perry[7] has used subcutaneous injections of horse serum with about equal success.

Recently Engman and McGarry[8] used intravenous injections of typhoid vaccine with favorable results. They recommended it for further trial, and it was decided to investigate this form of foreign protein therapy in the dermatologic wards of the Cook County Hospital.

TREATMENT BY INTRAVENOUS INJECTIONS OF *FOREIGN PROTEIN*

Eight cases of chronic psoriasis were selected which were resistant, or were responding slowly, to other therapeutic measures. Previous to the use of the vaccine three patients had been using applications of chrysarobin, one ichthyol, and another arsenic internally, each one without marked improvement. These patients all had generalized lesions of the guttate or nummular types, and in four patients the face and scalp were also involved. The duration of the present attack varied from one to seventeen months. All the patients had had previous attacks, which in four cases had entirely cleared up under treatment, while in the others the condition had subsided somewhat, with lesions remaining up to the beginning of the present attack. These patients remained in the hospital during the entire course of treatment. In the mild cases occurring in dispensary patients, this treatment was not employed, as it was not considered advisable to use the vaccine in patients who would not be under observation during the reaction following the injection.

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* From the Department of Dermatology, Cook County Hospital.

1. Schamberg, J. F.; Ringer, A. I.; Raiziss, G. W., and Kolmer, J. A.: Summary of Research Studies in Psoriasis, The Journal A. M. A., Aug. 29, 1914, p. 729; Research Studies in Psoriasis, Jour. Cutan. Dis., 1913, **31**, 698, 802. Schamberg, J. F.; Kolmer, J. A., and Raiziss, G. W.: Germicidal Activity of Chrysarobin, ibid., 1915, **33**, 1; Biochemical Properties of Chrysarobin, ibid., 1915, **33**, 98.
2. Gottheil, W. S., and Satenstein, D. L.: Autoserum Injections in Certain Obstinate Dermatoses, Med. Rec., New York, 1914, **75**, 620; The Autoserum Treatment in Dermatology, The Journal A. M. A., Oct. 3, 1914, p. 1190.
3. Fox, Howard: Autogenous Serum in Treatment of Psoriasis, The Journal A. M. A., Dec. 19, 1914, p. 2190.
4. Hilario, J.: A Contribution to the Autoserotherapy of Certain Diseases of the Skin, Jour. Cutan. Dis., 1914, **32**, 780.
5. Fox, Howard: Human Serum and Blood in the Treatment of Psoriasis and Other Skin Diseases, Jour. Cutan. Dis., 1915, **33**, 616.
6. Trimble, W. B., and Rothwell, J. J.: Treatment of Psoriasis with Autogenous Serum, Jour. Cutan. Dis., 1915, **33**, 621.
7. Perry, A. P.: The Treatment of Psoriasis with Horse Serum, Boston Med. and Surg. Jour., 1916, **174**, 274.
8. Engman, M. F., and McGarry, R. A.: The Treatment of Certain Diseases of the Skin by the Intravenous Injection of a Foreign Protein, The Journal A. M. A., Dec. 9, 1916, p. 1741.

The foreign protein employed in these cases was typhoid vaccine prepared from an active culture, grown twenty-four hours on agar slants, washed off with saline solution, killed by heating at 70 C. for two hours, and preserved by the addition of 0.5 per cent. phenol (carbolic acid). It was diluted so that each cubic centimeter contained 100,000,000.

From three to five injections were given at intervals of from three to four days. The average dose was from 75,000,000 to 100,000,000, the same dose being used for the succeeding injections as for the initial injection. Following the third injection, 2 per cent. chrysarobin ointment was applied daily to the lesions on the body, and 5 per cent. ammoniated mercury ointment to the face and scalp. No internal medication was given.

The reaction following the vaccine was similar to that observed in acute articular rheumatism,[9] except that the rise of temperature and the leukocytosis were not so marked. The succeeding injections were followed by a less marked reaction than the preceding injection. The maximum rise of temperature was to 103 F., and the maximum leukocytosis was 17,600. Headache was noted in two cases, and nausea and vomiting in one case. No other ill effects were observed.

Following the first one or two injections, the lesions became less inflammatory and less indurated, although there was no noticeable retrogression in the extent of the lesions. However, no new lesions appeared. Scaling was also diminished. In two patients who had previously been using chrysarobin, the lesions cleared up rapidly after the injections of the vaccine. In the other patients the condition presented little change until after the application of chrysarobin, following which the lesions disappeared completely in from eight to sixteen days.

The dermatitis resulting from prolonged use of chrysarobin cleared up promptly after one injection of the vaccine. One patient who had been using chrysarobin previously had developed a marked dermatitis. Following the first injection of the vaccine, the itching and erythema disappeared within twenty-four hours. Another patient who had received three injections of vaccine and was using chrysarobin ointment developed a mild dermatitis on the seventh day after the last injection. Following a fourth injection, the dermatitis subsided rapidly.

COMMENT

In general, the results of the vaccine were favorable, considering that only chronic and obstinate cases were treated. The mild cases respond readily, as a rule, to applications of chrysarobin, but in the chronic cases more vigorous treatment is necessary, and it is in these cases that the use of the vaccine finds a place.

When used alone, the vaccine does not clear up the lesions, though it diminishes the induration and inflammatory reaction. However, when used in conjunction with chrysarobin the lesions seem to yield more rapidly than under chrysarobin alone. That the vaccine has some influence and the good results are not due to the chrysarobin alone is illustrated by the three patients who had been using this remedy previous to the vaccine. No noticeable improvement was observed with the chrysarobin until after one or two injections of vaccine, when the lesions cleared up rapidly.

The treatment is simply symptomatic, clearing up the existing lesions, and offers no permanent relief. Recurrences are as likely to follow as when any other form of therapy is employed.

The use of intravenous vaccines has the advantage of easy administration, but has the disadvantage of a more or less marked reaction following the injection, necessitating that the patient remain in bed for from eight to ten hours. The autoserum injections, on the other hand, can be given in the office or the dispensary, but their preparation requires time and care, with a consequent danger of infection.

The dermatitis which results from prolonged use of chrysarobin is easily cleared up. The skin sensitiveness is diminished, and ordinary medication is more effectual and can be pushed without exciting an inflammatory reaction. When a dermatitis is already present, it disappears shortly after the injection, and local treatment is not interrupted. Spiethoff,[10] using injections of autogenous and foreign serum, points out that those dermatoses which in the course of treatment develop an especial susceptibility to chemical substances are amenable to this form of therapy. Luitlen[11] has shown by animal experiments that inflammatory skin reactions are favorably influenced by parenteral injections of autogenous and foreign serum, as also by colloidal substances, in that the skin sensibility is altered toward the irritants applied to it.

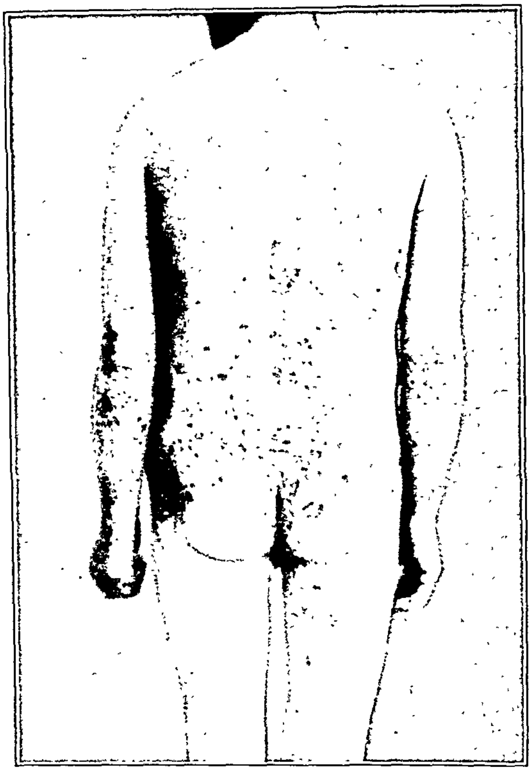

Fig. 1.—Guttate and nummular lesions distributed over the back and buttocks in a case of psoriasis.

The changes which occur following the intravenous injection of vaccine and which result in the retrogression of the lesions are not fully understood. Whether it is due to a mobilization of ferments, as observed by

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[9] Scully, F. J.: The Reaction After Intravenous Injections of Foreign Protein, The Journal A. M. A., July 7, 1917, p. 20.

[10] Spiethoff, A. B.: Die Herabsetzung der Empfindlichkeit der Haut und des Gesamtorganismus durch Injektionen von Eigenserum, Eigenblut und Natrium nucleinicum, Dermat. Wchnschr., 1913, **57**, 1227.

[11] Luitlen, Friedrich: Veränderungen der Hautreaktion bei Injektion von Serum und kolloidalen Substanzen, Wien. klin. Wchnschr., 1913, **26**, 653.

Jobling and Petersen,[12] with changes in the metabolism, or to a dispersion of the colloids[13] with biochemical changes in the serum, is still a subject of inquiry. Engman and McGarry[8] point out that hyperpyrexia may be a factor, as they observed the retrogression of the lesions of psoriasis in intercurrent infections, as pneumonia and typhoid fever.

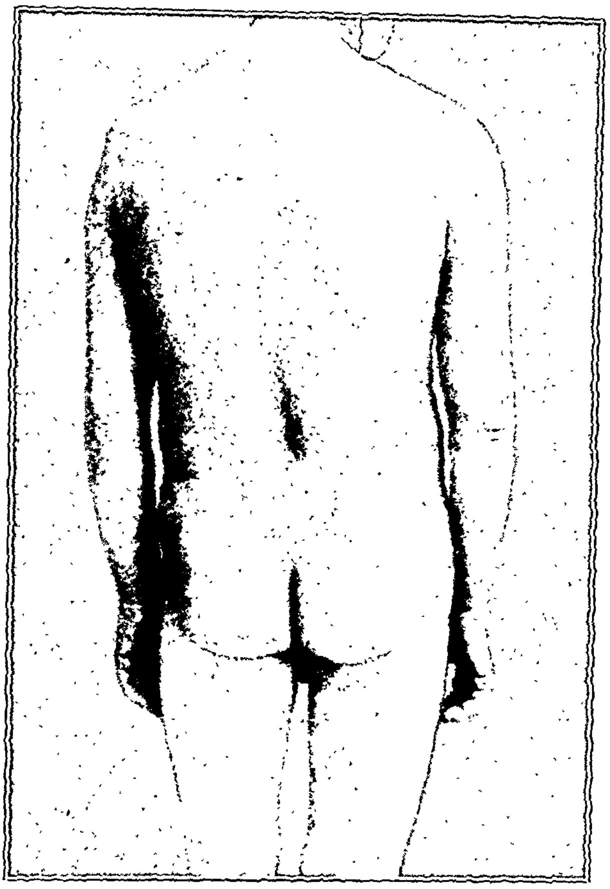

Fig. 2.—Same patient after three weeks' treatment with chrysarobin ointment topically and protein vaccine intravenously. Lesions have cleared up and only slight pigmentation remains.

If psoriasis were of an infectious origin, the effect of the vaccine might be explained on the same basis as in acute articular rheumatism and typhoid fever, according to the views advanced by Jobling[14] and by Teague and McWilliams.[15] However, careful research by Schamberg, Ringer, Raiziss and Kolmer[1] failed to determine any organism as the causative agent.

It may be, as assumed by Spiethoff,[10] Gottheil and Satenstein,[2] and others who have used the autoserum therapy, that the psoriatic foci are rendered more susceptible to medication, or that the skin is rendered less susceptible to local treatment allowing prolonged and stronger medication without producing a dermatitis. This seems probable from the clinical phenomena and results which were obtained.

CONCLUSIONS

1. Intravenous vaccines alone do not clear up the lesions of psoriasis, though they do lessen the induration and inflammatory reaction.
2. When used in conjunction with weak chrysarobin ointment, the lesions clear up rapidly.
3. Favorable results were obtained in chronic generalized cases resistant to other forms of treatment.
4. Chrysarobin dermatitis is prevented by the vaccine, and when present yields promptly.
5. The action of the vaccine is not fully understood, but it seems to lessen the sensitiveness of the skin to local medication, allowing uninterrupted treatment.

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[12] Jobling, J. W., and Petersen, William: Bacteriotherapy in Typhoid Fever, The Journal A. M. A., Aug. 7, 1915, p. 515.

[13] Jobling, F. W., and Petersen, William: The Nonspecific Factors in the Treatment of Disease, The Journal A. M. A., June 3, 1916, p. 1753.

[14] Jobling, J. W.: The Influence of Nonspecific Substances on Infections, Arch. Int. Med., June, 1917, p. 1042.

[15] Teague, Oscar, and McWilliams, H.: Bacteriolytic Power of Normal Human Sera and of Typhoid Patients' Sera for Typhoid Bacilli, Jour. Immunol., 1917, 2, 193.

LARGE VESICAL CALCULUS

J. P. Browne, M.D., Plainfield, Ill.

Miss A., a rather thin, anemic girl, aged 16 years, consulted me last July as she was troubled with constipation. She gave a rather obscure history of pain in the bladder and lower abdominal region, especially when urinating or having a bowel movement.

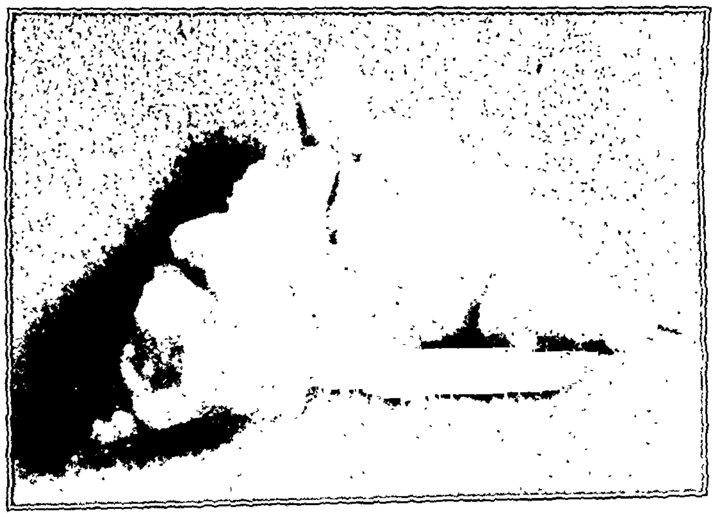
The patient stated that she thought there might be calculi in the bladder and that she had attempted to remove a small stone from the urethra with a hairpin.

A sound, when passed into the bladder, immediately struck a stone apparently at the bladder entrance to the urethra. An operation for removal of the stone was immediately advised, and the patient was removed to Silver Cross Hospital, Joliet, Ill.

A cystoscopic examination revealed the presence of a large stone with a foreign body embedded in it. Suprapubic incision for removal of the mass was determined on and immediately performed. An immense calculus 4 inches in length and 3 inches around several different circumferences was removed. The calculus had grown around a hairpin as a nucleus. The hairpin was lying in the bladder in a widely extended obtuse angle, and was covered with the deposit to within about a quarter of an inch of each end. The mass tapered from the center toward each point.

The bladder was thoroughly irrigated, the wound closed, and a retention catheter inserted. Daily irrigations were instituted, and an uneventful recovery followed.

The accompanying illustration shows the exact size of the calculus, although portions of it crumbled during removal. The length of time that the hairpin had been in the bladder could not be determined, but the enormous size of the calculus would indicate that it must have been there for months, perhaps years.



Vesical calculus formed around a hairpin as a nucleus.

Selective Gymnastics.—The director of hygiene of the Dayton, Ohio, schools has recommended to the school authorities a plan for gymnastic instruction of the school pupils on a selective plan. The children will be divided into groups after careful physical examination, and each group given such exercises as are adapted to their strength, requirements, etc.

Military Medicine and Surgery

THE WORK OF THE AMERICAN RED CROSS MISSION TO RUSSIA *

FRANK BILLINGS, M.D.
Chief of the American Red Cross Mission to Russia
CHICAGO

The mission that I had the honor to lead into Russia was composed of twenty-one commissioners; I have never been associated with a finer body of men. Those from Chicago, Major Wilbur E. Post, Major Harold H. Swift, and Major Raymond Robins, made me feel proud of Chicago. Each of those men was on tiptoe, as indeed was every other member of the mission. There are some members of that mission who need mention; but when I do mention some of their names it does not mean that the work of others on the mission was less notable. As it happened, because of conditions in Russia and because of the character of the men, Raymond Robins did a notable work and is continuing to do notable work there. If Chicago does not know Raymond Robins yet, I want to say that Chicago should cherish and honor Raymond Robins because if ever man did, he loves his fellow men.

All the men from the East did notable work, and some of us left this country without much sacrifice; but this was not true of all. One man whom I invited to go was with me in Russia twenty years ago. I knew that the one being on earth that made life worth living to him was an invalid, and that perhaps he could not go; but when his wife heard that he was invited to go she said to him and to his friends that she would be made absolutely happy if he would go, because she felt her illness of years had kept him from doing the things for his country that she desired him to do. And when they bade each other good-by, it was with the feeling that they would never see each other again. He left with the mission, and in August that patriotic woman died. Can you think of any more sublime patriotism than that expressed by this noble woman and by her husband, Dr. W. S. Thayer, who went with me to Russia? Dr. Thayer remains with the other members of the mission left in charge of the Red Cross work there, the chief of the medical department.

We were four months away from Chicago, and were two months in Russia. That is but a short time. It would, therefore, be presumptuous on the part of any one who would say that he brought a final word of Russia to you. Even those who have lived in Russia for years do not understand Russia; but because of the nature of our mission, and because of the problems put up to it by the War Council of the Red Cross and by Mr. Root, we made a broad survey of conditions in Russia, including an investigation into conditions that involved the revolutionary government, the sanitary department of her army, the public war relief organizations of Russia, food for the army, and many other problems related to the civilian population. This necessarily brought knowledge to the members of our mission that we otherwise would not have obtained, and it is because of this that I presume to tell you something of Russia tonight.

Fig. 1.—Lieut.-Col. Frank Billings, chairman of the mission.

POLITICAL CONDITIONS IN RUSSIA

To make you understand something of what we saw in Russia, I should like to give a perspective of that great nation. Those who have not been in Russia think of Russia as a big country, as it is; but you do not know how vast it is. One thinks of Siberia as a place that is barren, cold, inhospitable, and not fit for the habitation of man, and a place which Russia under the old régime has used as a prison house for its civilian and political prisoners. That is not true. Russia, including Siberia, is vast, and when one travels through it the distance from one point to another seems interminable. The Trans-Siberian Railroad extends 5,500 miles from Vladivostok to Petrograd. The territory in extent, as it existed before the war, is over 6,000 miles from east to west, and over 2,000 miles from Archangel to Odessa. This vast country is populated by only 180,000,000 people. I say only 180,000,000 because there is room for 500,000,000 and more. Siberia alone, with over 5,000,000 square miles, has only about 6,000,000 people, and these are mainly scattered along the Trans-Siberian Railroad, which traverses one of the most beautiful countries that man may look on. It is like traveling through our beautiful Western States. There are magnificent forests, vast in extent, beautiful lakes here and there, with a wonderfully fertile soil, as evidenced by the growing crops when we passed through it. We saw herds of cattle, of sheep and of swine everywhere.

As one met the people at the stations, soldiers and civilians, they were as fine looking a lot of manhood and womanhood as one could wish to see anywhere.

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* Address delivered before Physicians Club of Chicago, Nov. 1, 1917.

Think of that vast country, with a vast population, as compared with ours, ruled for centuries by an autocratic power! When there was a czar more humane than others, a bureaucratic cabinet made him relatively as cruel as any other, and not only held this great people in bondage, but kept them illiterate for a purpose; kept them in serfdom for many years; did not let them think or act for themselves; and when we arrived in Russia these people, autocratically governed, had been at war for three long years with the most cruel nation the world has ever known. She had fought not the good fight that her allies expected of her, but nevertheless she had fought; and think of the long line that she attempted either to defend or from which to send an offensive over 1,200 miles of battlefront. She had placed millions of soldiers into the army. From the beginning there have been mobilized 16,000,000, and of this number 6,000,000 may be accounted for; 2,000,000 or more are prisoners in Germany and in Austria. A large proportion of the remaining 4,000,000 were killed; others are incapacitated for further service in the army either by wounds, by a crippled condition, or by invalidism. That leaves at the present time about 10,000,000 soldiers under arms. Of that number, about 3,000,000 are at the front covering 1,200 miles, and the remainder are in barracks all the way from the front to Siberia and down to the Crimea, so that everywhere in Russia at the present time one meets soldiers.

Fig. 2.—Major William S. Thayer, Baltimore.

In the midst of this war, during which there have been made disastrous advances and masterly retreats, her soldiers have been well fed and well clothed, but not always well munitioned or well armed. Many of them went to the front in the earliers years of the war without a musket, understanding then that they would become armed when they captured guns from the enemy or would secure them when their fellow soldiers fell. I have heard the officers say that these men fought the Germans with their bare hands during the first years of the war. They were good soldiers, and then in the midst of this terrible war, with the mismanagement of the old régime, with traitors in her cabinet, came a revolution almost in a night. One hundred and eighty millions of people, who had been held under autocratic sway, were told they were free to do what they pleased. Can you wonder that those people were more or less confused? They had known something of democracy, but not much. What they knew of democracy under autocratic rule they learned of themselves, for they established, away back in 1865, the zemstvo unions in their provinces. To the local zemstvos, delegates were elected by the peasants, and the central zemstvos in Moscow was represented by delegates elected by the local zemstvos. Through the zemstvos they established schools, cared for their sick and destitute, and learned better agricultural methods. When they advanced too far in that democratic movement and were improving too rapidly, the autocratic government stepped in and appointed a member of the cabinet in Petrograd and a member of the government in every province to modify and shape their activities.

THE PROVINCIAL GOVERNMENT

While they knew something of democracy gained from the zemstvos, it was colored with socialism, injected from the outside. Therefore, after the revolution there was established in Russia what may be called an experimental laboratory of socialism in the form of a provincial government. A cabinet was formed through the Duma, the fourth Duma. The Duma was the first legislative body that the people of Russia had ever enjoyed, and it formed a new cabinet because the extreme socialists, the Maximalists or Bolsheviki, and the Workmen's and Soldiers' Council,

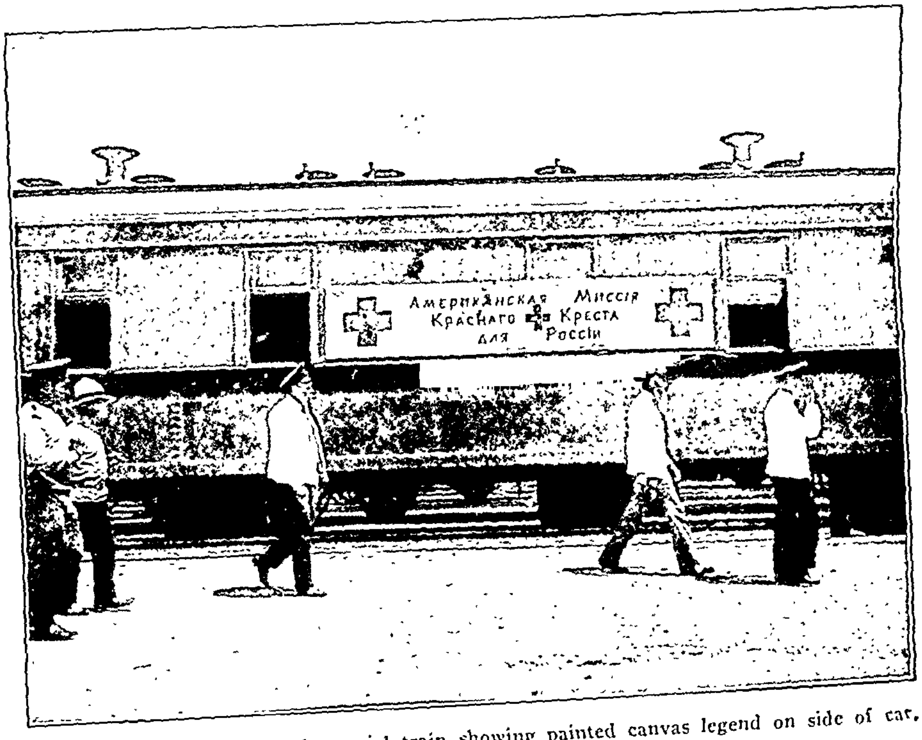

Fig. 3.—Car on mission's special train showing painted canvas legend on side of car, "American Red Cross Mission to Russia."

the representatives of the strongest socialists of Russia, did not care to take the responsibility of the first cabinet. Therefore, the Duma formed the first provisional cabinet. In that cabinet were some of the biggest men of Russia. Prince Lvov was the premier, Mr. Milyoukoff the foreign secretary, Mr. Routchkoff the minister of war, and Mr. Kerensky the minister of justice, all men of fine character. The other cabinet ministers were of less importance. Immediately after the cabinet was formed, the Duma legislated itself out of existence. The socialists demanded and obtained the abolition of the death penalty and of all discipline in the army. The minister of agriculture declared an agrarian policy which has been one of the most harmful things done in revolutionary Russia. He declared that the imperial lands, the lands of great estates, and even the lands held by eight or more million peasants should revert to the state and be divided among the people of Russia. They demanded that the war, if continued, should be fought without annexations and without indemnities. They ordered the minister of war to recognize committees in the army who should supersede the officers and decide military tactics and other conditions of the army, including its domestic functions. The men of character in the cabinet refused, and so the first cabinet lasted but a few weeks. That left Russia without any legal body to form a new cabinet, and in revolutionary Russia they soon came to a satisfactory method of doing this. The political parties, including this vast body of socialists, the greatest number in Petrograd, agreed to the formation of a coalition cabinet in which the socialists dominated. Neither of these three great men I have named could accept a place in the cabinet, and so the next one was formed of men of lesser importance, but with Mr. Kerensky, who was minister of justice at first, the minister of foreign affairs, and Mr. Terestchenko, who had been in the first cabinet, also in the new one. The people accepted the cabinet of this provisional government, which had been created without legal status. The second cabinet lasted only a little while, and so it has gone on until there have been six cabinets formed since the revolution. The last one was formed about the middle of September. Mr. Kerensky has been in each cabinet, and after the third cabinet he rose to the position of premier, and Mr. Terestchenko has occupied the next important place, that of foreign minister. I have taken time to say this, for if you do not understand the political conditions as they exist in Russia today, you cannot understand the spirit and the character of the people of that country, who not only recognize but support a government formed as I have attempted to describe.

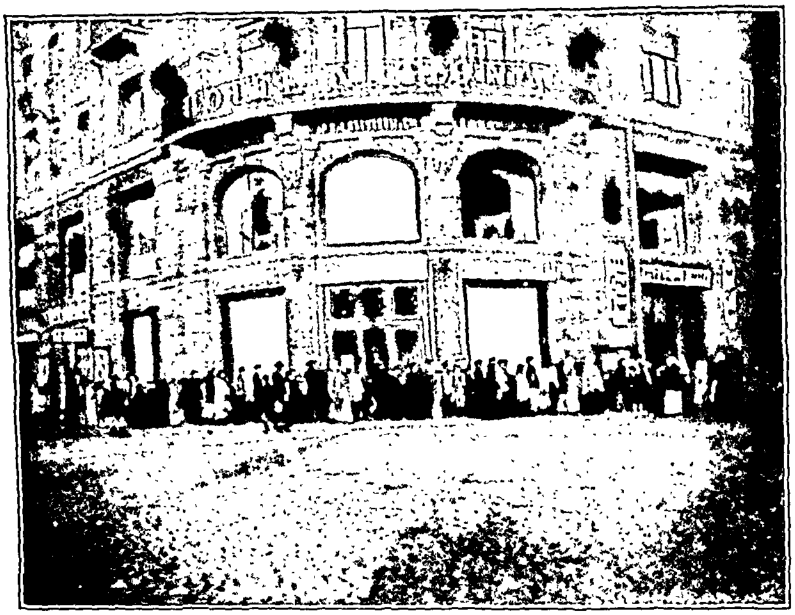

Fig. 4.—Bread line in Moscow.

The army under this revolutionary system became disorganized because of the abolition of the death penalty and of discipline, and because of the appointment within its own ranks of committees of soldiers who dictated to the officers what should be done. What could follow but disaster? In spite of all disorder, they have held the trenches; they made an unwise advance in Galicia last summer. At the Riga front some units fought well and others not at all. Disorganized and inefficient as they have been, still they have held twenty-two German corps at bay all summer, and they still hold them. Amid this disorder, sanitation was neglected. When sanitation is neglected infectious diseases and infestation with vermin increase, with the result that there were more sick soldiers than Russia had had since the war began. But in spite of these things the line holds.

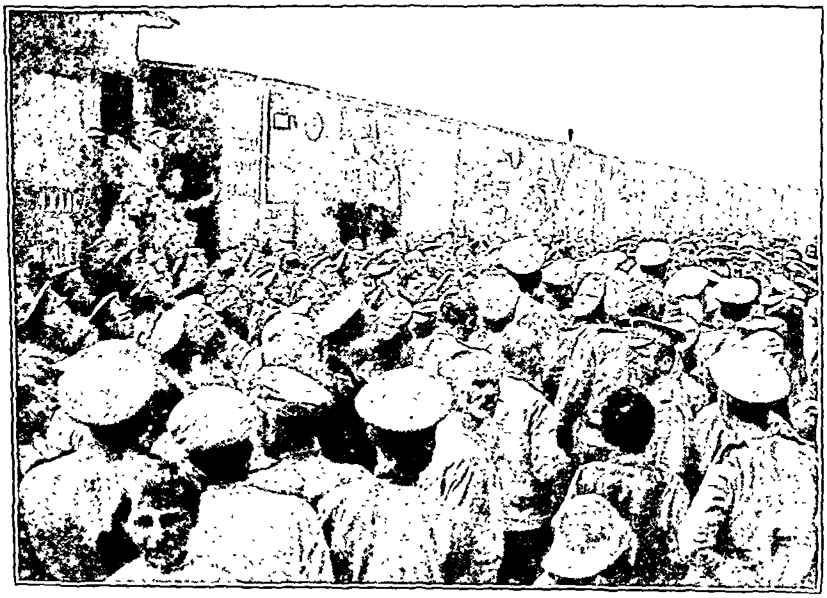

Fig. 5.—Crowd of Russian soldiers at one of the stations, showing a Russian troop train.

But what of the disorder in the rear as a result which must necessarily come? Even under the old régime there was mismanagement of her civil government. The productive industries, which began to decline during the old régime, after the revolution diminished more than ever. Strikes occurred after the revolution because the peasants and soldiers believed that liberty meant the right to be idle, just as our liberated slaves did after our war. The flour mills gave a diminished output; transportation was more or less crippled because the industries were diminished in productiveness and because of labor strikes. All of these factors led to a diminution in the value of the ruble.

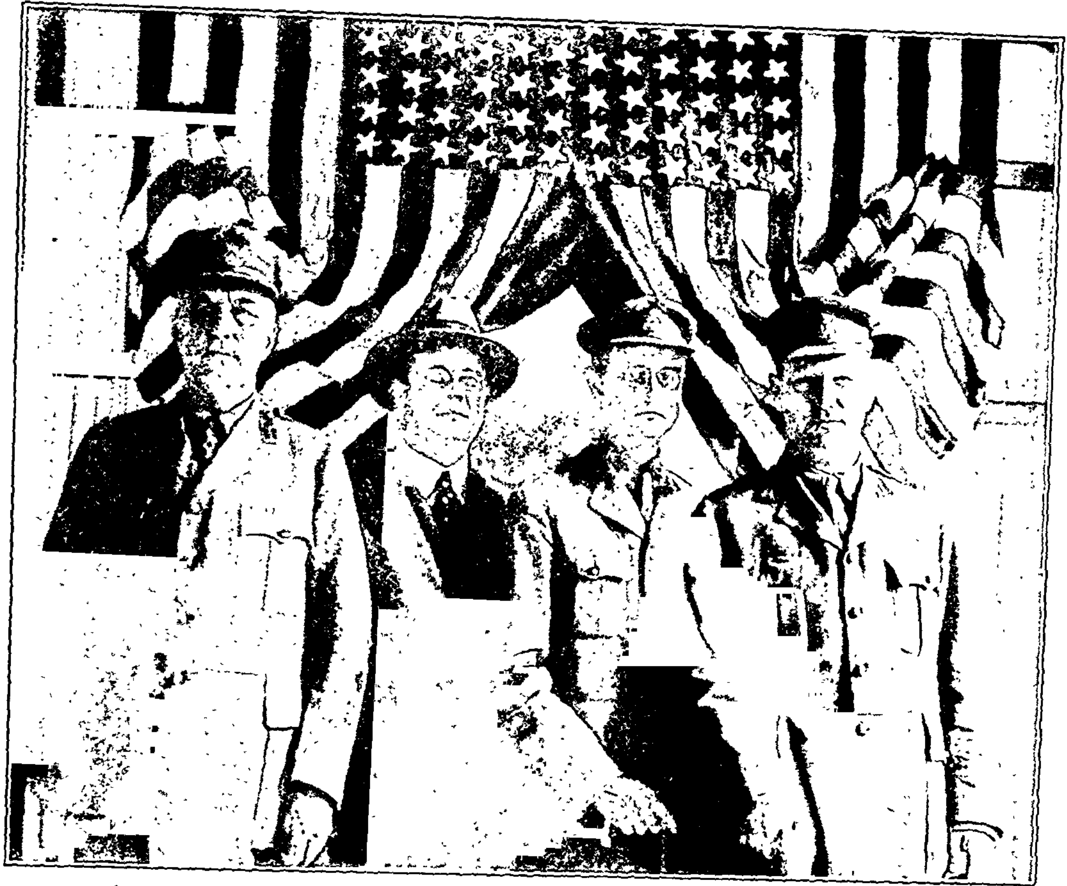

Fig. 6.—Group of Chicago members of the commission at the mission headquarters in Petrograd. From left to right: Lieut.-Col. Frank Billings, Mr. Samuel Harper, Majors H. H. Swift and Wilbur E. Post.

Mr. Root left a letter at Vladivostok in which he stated to our mission that the food problem in Russia was the crux of the situation; that if food scarcity continued in the large cities like Petrograd, Moscow, Kiev, and in certain provinces, riots would recur as they did in 1916-1917. With riots in the rear, great disorder would occur at the front; the soldiers would evacuate the trenches, and that would mean that a greater number of American lives may be sacrificed in France.

It did not take much investigation to show that if our mission did help in the food problem it would not be as a Red Cross mission, but as a diplomatic body.

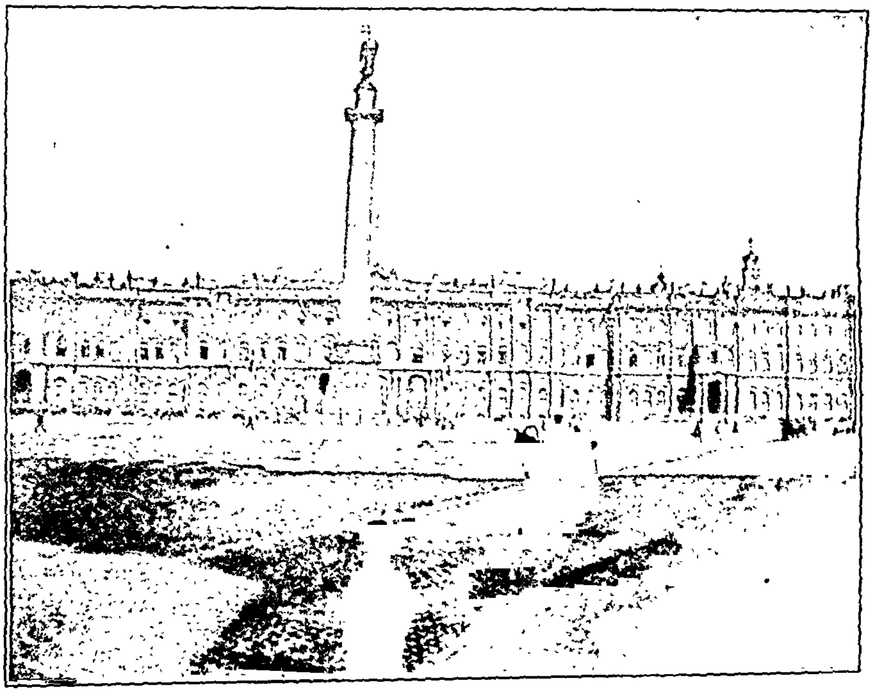

Fig. 7.—The Winter Palace in Petrograd, containing a Red Cross hospital of 500 beds, government offices, etc.

REASONS FOR A HOPEFUL OUTLOOK

I have told you some of the worst things of Russia. Let me tell you why I have come back very optimistic about Russia with this background, with this sort of perspective of that great nation. The provisional government of Russia, composed of men chiefly socialists, in the beginning was, as I have said, an experimental laboratory of socialism. The socialists the world over looked on that socialistic government as one that would be copied everywhere; that it would be eminently successful, and that Russia would be a very democratic government because based on socialistic ideas. This government has been in existence about seven months, and in that time those who were strong socialists in the early cabinets, those who believe in socialism as the bulwark of democracy, have learned a lesson. The result is that the cabinet of today in Russia is the strongest she has had since the revolution. Mr. Kerensky is a man only 34 years of age, a lawyer, who had never had any experience in administration or organization. He was a very extreme socialist, had been in every cabinet, and had been premier in four of the cabinets. It was through him that discipline in the army and the death penalty were abolished. Responsibility has brought a change in the man. He has restored the death penalty. I saw in one of the newspapers yesterday that the death penalty had not been restored. It has been restored because this was done while we were in Russia, and men who have refused to obey have been shot. He is gradually reestablishing discipline. Americans ask, Why does he not establish it at once and by force if necessary? Remember that the government was started by socialists, who were in the majority, and any attempt to suddenly bring back order in the army would have meant counterrevolutions. Disorder can be overcome only by the education of the people through bitter experience, and they are receiving that education. They have learned that socialism is not and cannot be the fundamental foundation of a democratic liberty. Mr. Kerensky has learned it so thoroughly that he has repudiated socialism, and the Bolsheviki have repudiated him.

Fig. 8.—Madam Brosko-Broskovskeia, grandmother of the Russian Revolution, seated with a company of Russian officers and soldiers.

KERENSKY

Mr. Kerensky is an honest man. He looks at one squarely; he talks to one frankly. He is quick and alert physically, and just as alert mentally. He is patriotic. When I saw Mr. Milyoukoff last, three days before we came away, I asked, "Is Mr. Kerensky honest?" He replied, "Yes." "Is he patriotic?" "Yes. He is so intensely patriotic that he would die tomorrow if by so doing he could save his country."

The members of the cabinet, the people of Russia of all classes, have learned the lesson by bitter experience, that liberty has its price. That the price is law, order, discipline, and submission to leadership.

I saw enough of these men of the cabinet, talked to them about what they were doing, to make me believe they are honest, patriotic, and that they will finally bring the people of Russia into a condition of order with the proper understanding of what democratic liberty means.

THE WAR RELIEF ORGANIZATIONS

What else did we see that is heartening? The war relief organizations of Russia are the most wonderful I have ever seen anywhere. The sanitary deparment is headed by a physician who is one of the most celebrated bacteriologists and hygienists of Russia. He is a man of fine character, and the men on the staff are of the same fine type. They have done very efficient work in this war under the old régime and under the revolution. Remember that Russia, like America, secured many things from Germany before the war. They received as many packages of drugs and chemicals marked "Made in Germany" as we did, and when the war came they were without them. You and I had looked on the Russians as incapable of making those things, and yet they have gone ahead and manufactured them. The sanitary department, which conducts a factory in Petrograd for making drugs, surgical supplies, artificial limbs, crutches and other necessary supplies for the medical department of the army, is splendidly administered. They do not have the materials sometimes with which to make things, but when they have them they make them well. The sanitary department of the army at the front does good work, with the Red Cross and zemstvo union in field and ambulance work and in base hospitals. The front is one place where the three great war relief organizations cooperate; back of the front the cooperation ceases. The sanitary department of the army has plenty of medical men, but does need help in certain supplies. Motor ambulances and possibly an American ambulance personnel, including sanitarians, are much needed by the army.

The Russian Red Cross during the old régime was supported chiefly by the royal family. At the time of the revolution that income ceased, and since that time it has received governmental aid. It is a big organization. It tried to attach the mission to it because we were sent by the American Red Cross; but as we were sent to the Russian people and to no single organization, we told them we would cooperate with the Russian people as represented in the Red Cross, the zemstvo union and the sanitary department of the army. The Red Cross is doing great work. It has enormous factories and enormous supplies; more than we have. Its supply house in Petrograd is an enormous structure comprising many buildings. Dr. Orden, head of the supply department, told us that there were 50,000,000 meters of surgical gauze on hand; that they had 5,000,000 suits of underclothing in stock. They lack some of the things that America may furnish. One of the finest sights in our experi-

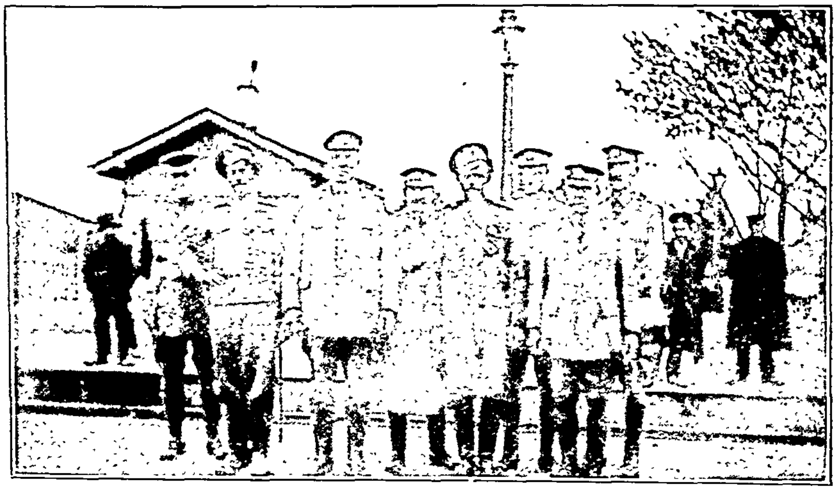

Fig. 9.—Group from the mission en route homeward through Siberia, including two Cossack guides. From left to right members of the mission are: Major W. E. Post, Chicago; Lieut.-Col. Frank Billings, Chicago; Majors H. C. Sherman, Columbia; H. H. Swift, Chicago; G. W. Whipple, Harvard, and C. E. A. Winslow, Yale.

ence we saw at Petrograd when we visited the Red Cross Hospital of 500 beds in the winter palace, the best use to which the winter palace was ever put. The winter palace is also notable at this time as the residence of the grandmother of the revolution, Madam Brosko-Broskovskeia. Under the old régime a political prisoner in Siberia, she now enjoys luxurious quarters in the palace while the ex-czar takes her place in Siberia. At Moscow the Red Cross had supply houses with hospitals equally as good.

THE ZEMSTVO UNION

But it is the great zemstvo union of which I want to say the most. The zemstvo union, as I mentioned a moment ago, with its branches in the provinces, has broadened its activities during this war. The old régime did not furnish the soldiers with sufficient clothing, boots, shoes, arms, or with munitions, so that the men were seriously handicapped. The zemstvo unions represented by millions of people, with the peasants as its fundamental basis, went to work and in 1915 and 1916 they tanned 500,000 raw hides to make boots and shoes for the soldiers at the front. They spun wool, and they made clothing for their soldiers. They furnished ambulances and field and base hospitals. They helped to furnish the evacuation hospitals together with the Red Cross and sanitary department of the army. During the war they have furnished 500,000 beds for the soldiers. Can you get that number? 500,000 beds! In Chicago we felt quite elated when we furnished four base hospital units of 2,000 beds all together. The Russian people have done an enormous amount of work, and have done it well. We had a committee visit the front. It found that the work was well done; but since the revolution there has been more or less embarrassment because of the lack of discipline among the soldiers, who refused to be inoculated with antitetanic toxin and also refused to be vaccinated as a preventive measure against cholera, typhoid and paratyphoid. The committee reported that the men were disregardful of sanitary measures at the front, but in spite of these things, the medical officers carry on their work and by persuasion have been able to do what they could not command the force to do. The three public war relief organizations operate 100 sanitary trains to and from the front. These are the evacuation trains that take the wounded and sick soldiers from the base hospitals to the rear. Russia is divided into seven evacuation districts, and of these the district of which Moscow is the center is the largest. In the Moscow district there are 200,000 beds, of which 20,000 are in Moscow. A meeting is held every day, and they know the number of soldiers coming from the front. When the wounded soldiers reach Moscow they are bathed and have their hair cut and their clothing is disinfected in a most modern way. Those who are sick and severely wounded are kept in Moscow hospitals, and those who have a lesser degree of wounds or illnesses are evacuated to the rear within two or three days. During the war the Moscow district has taken care of sick and wounded soldiers to the number of 2,700,000. Other districts have taken care of the remainder, a total approximately of 4,000,000 wounded and sick soldiers.

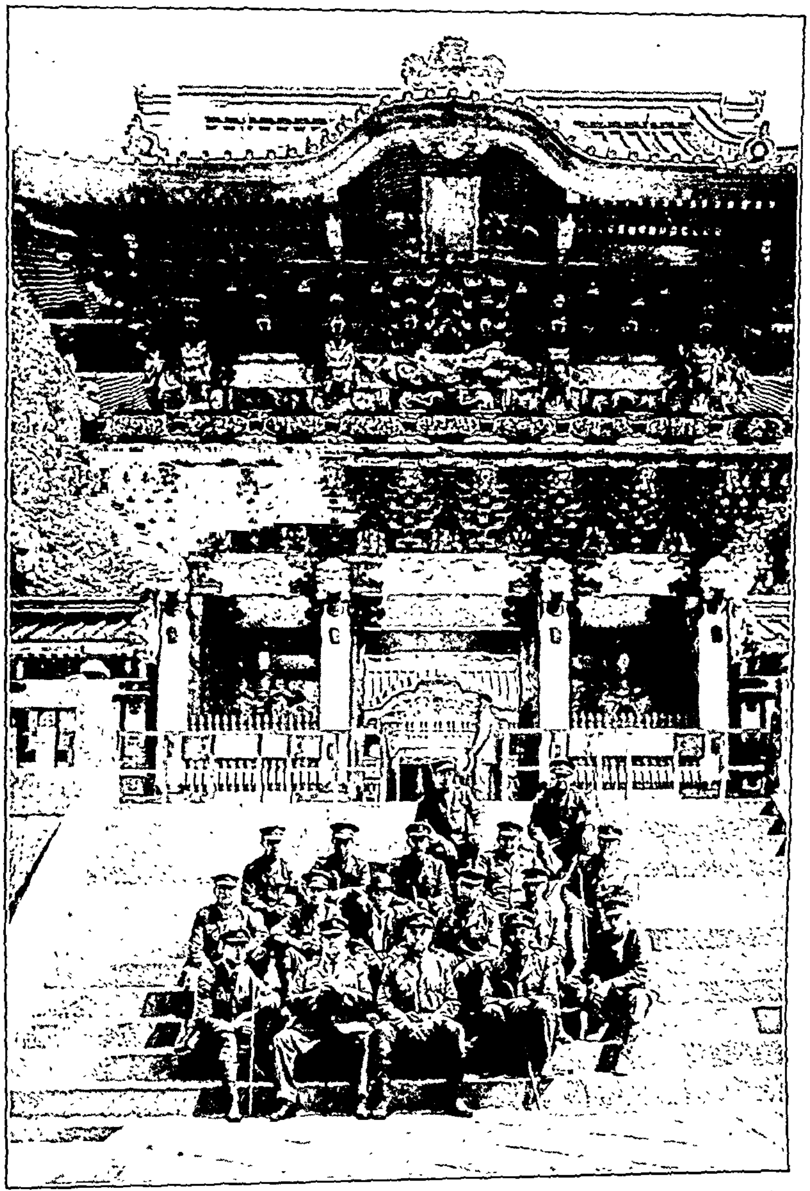

Fig. 10—Members of the American Red Cross Mission to Russia at Nikko, Japan.

THE CHARACTER OF THE RUSSIAN PEOPLE

The real substantial hope in Russia is the character of her people. In spite of the fact that the Russian people as a whole are illiterate, they possess characteristics that are so admirable, that it sets them apart from all other people that we have ever known. They are orderly, good natured, good hearted and industrious. They are the most wonderful technicians the world has ever known. The untutored peasant spins, weaves, tans leather, makes boots and shoes, and makes munitions. He will make a house with an ax and some wood. In spite of a long war, in spite of the revolutionary conditions, in spite of the absence of all police power and in spite of the erroneous ideas of liberty, there has been less disorder since July 4, 1917, the date of the last Petrograd riots, than there is in America today. When one travels, as some of us did, from Siberia to Moscow, and Petrograd to Archangel, to Odessa, to the front, and to various other places, we could not help but be impressed with the good order of these people. Sometimes soldiers would come into occupied compartments on the train, but they would not create any disturbance other than to impose their presence on one, as a harmless expression of their understanding of democratic liberty. I saw—and I know I speak for the other members of the mission—less disorder in Russia in two months among its civilian population than I may see in Chicago in any week in the year.

There is food scarcity in Petrograd, Moscow and in a few provinces. This scarcity in certain places is due to faulty distribution of food. Siberia, Southern Russia and Bessarabia have an abundance of food. Faulty distribution of food is due to lack of efficient river and railroad transportation. There was a like food scarcity in Petrograd and Moscow in 1916-1917 during the old régime. There is a lack of food and a lack of clothing, boots and shoes and many things the Russian citizens need. This is illustrated by the fact that each one must have a card and stand in line to secure supplies. The Russian accepts this quietly and good naturedly, never making a protest, never trying to get ahead of his neighbor and, if necessary, lying on the sidewalk all night that he may obtain the needed articles early the next day. He is perfectly satisfied if he finally gets the food and other things that his card calls for. Can you imagine a group of Americans lying on the sidewalk with cards to secure food, not trying to get ahead of their neighbors and not protesting to those in authority about it?

When we arrived at Vladivostok we were given the same train that the Root mission had used to come out of Russia. It is one of the imperial trains, with a combination diner and observation car—the same car in which the late czar, by a stroke of the pen, became Nicholas Romanoff. It is a beautiful train, but not so comfortable as many of our Pullman trains. We had plenty of food on the train, so that we went into Russia in a luxurious way. When we reached the larger towns and stopped for half an hour, the soldiers would read the Red Cross placards with legends in Russian on the windows, and received us with great enthusiasm. The Russians are great orators; so we would have two or three short speeches at every station, and always had to make replies to them.

When we reached Irkutsk, the capital of Siberia, there were a dozen or more freight trains loaded with soldiers mustered in from that region, going to the front. We ran in between them. We saw them bidding good-by to their wives and sweethearts, buying black bread and raw cucumbers, eating and singing. They greeted us enthusiastically, and made speeches. As we moved out of that station they came out of the freight cars and cheered us heartily. I said to myself: Fancy a Russian mission going to Washington and halting at some town en route and having a lot of our soldiers in freight cars halted in the same station. How many of our boys would cheer them? That is the spirit of the Russian soldier; that is the spirit of the Russian people.

THE COSSACKS

In addition to the spirit manifested by the people of Russia, one of the most important factors stimulating one's optimism of Russia's future activities in the war is the fact that, taken as a whole, the Cossacks are patriotic, democratic, submit to discipline and are excellent fighters. It is difficult to make an estimate of the number of Cossacks in the Russian army. It was named as from one to three millions and the minimum is certainly one and one-half million men.

CHEVALIERS OF ST. GEORGE

In addition to the Cossacks there is a society known as the Chevaliers of St. George. This numbers eight hundred thousand men. The members of the society have been decorated with the order of St. George for some act of bravery or other service to the country since the war began. The members of the mission met many groups of the Chevaliers of St. George and found them desirous of the reestablishment of law and order and of discipline in the army. They asserted many times that they would fight to the last. Always on the battle front there have been units of soldiers, sometimes large, sometimes small, who have fought well, while others failed in the offensive. These loyal units are usually composed of Cossacks and of the Chevaliers of St. George. We may count, therefore, on not less than two to three millions of loyal troops in Russia who will submit to discipline and who will fight.

TALK OF PEACE

In Russia today you hear no word, excepting from pacifists, excepting from the paid agents of Germany, and there are many of them, of a separate peace. It is believed by the present leaders in Russia that Russia will have an organized army by spring, and they say that she will never lay down her arms to an autocratic Germany. The trouble is that Russia is isolated. In Russia we were as much isolated in one sense of the word as if we had been on an uninhabited island. There is no news of America in Russia except what comes through German sources. In the Russian newspapers it is sometimes printed that America is in this war for sordid gain. In one paper I saw it stated that America was the vassal of England, and that England wanted to dominate the world. That is the sort of news they get about America. There is no news of the fine young men of our country who have registered, no news of conscription, no news of our numerous training camps, no news of the vast sums of money to carry on this war, and even no statement of the wonderful documents that have been issued by our great President. Can you wonder, therfore, that the Russians, who do not receive kindly attention or any information from our country that is authentic, feel themselves isolated as if they had to fight their battles alone? If you could have seen the expression on the faces of the officers of the relief organizations when we took the lists of our supplies to them, it would have thrilled all of you. They looked at the lists of supplies and said with a smile, "What is the price of this?" "How much more can we get of this or that," and "What is the price?" When we told them there was no expense, that this was a gift of the American people through its Red Cross to the people of Russia, the tears came into their eyes. It was the first time, in all probability, small as it was, that any nation has ever given Russia anything. Our allies do not understand Russia. They have not helped her as they should. They have not helped her in the materials she needs. She needs financial aid. They have not helped her in that spirit in which a great democracy should help a sister republic in its infancy.

AMERICA'S DUTY TO RUSSIA

Russia feels kindly toward America. She looks on us as her best friend. For what the Root commission has done, for what Mr. Stevens of the railroad commission has done, and for what we have done through our humble mission there, Russia feels grateful. She feels she has our friendship and she asks for more, but not greedily and not for very much. For certain things she desires to pay. This is America's opportunity. If America will help Russia at this time not only with money, but with the means whereby she can start a Russian propaganda to obtain news from America as the other allies are doing, great good will be accomplished. I am happy to say to you that we have already started that propaganda through the generosity of Col. W. B. Thompson, vice chairman of the mission. It was put before our President, and he has accepted it and has further agreed that it will be supported until Russia has adequate information of what is going on in America, and that America is her friend.

I want to repeat: I have come back full of optimism about Russia. She is doing a great work. She has a large army that must be properly cared for. She has a lot of fine men, even though they are socialists; they are intensely patriotic, and are learning to be rational through the responsibility that has come to them as members of the government. We owe to them our help to form a stable democracy, and we can do it. If we do that, we shall save American lives in France; if we do that, we shall finally cement the friendship of Russia, which is already ours.

122 South Michigan Avenue.

DEVICES FOR THE SANITATION OF TRENCHES

SIMON BARUCH, M.D.

NEW YORK

Any enhancement of the comfort, hygienic condition and safety of our defenders merits speedy attention. For this reason I venture to suggest some devices that presented themselves to me while reading the description of trench sanitation by Dr. C. C. McCulloch.[1]

McCulloch writes: "It naturally adds much to the efficiency of this system if the urine can be handled separately, particularly in incinerator methods. This is done in some cases by separate urine buckets, in others . . . by urine soakage pits."

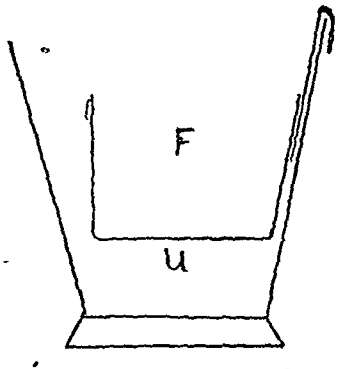

Fig. 1.—Emergency bucket, used in early trench construction: *F*, feces; *U*, urine.

Plan 1.—A method of separating the liquid from the solid excreta is illustrated in Figure 1 as applicable to the bucket now in use according to McCulloch's illustrations.

A separate bucket for the solids is suspended by a strong flange from the posterior upper rim of the large bucket now in use. It will be noted that the anterior rim of the feces bucket is flattened to increase the space for urinating. The urine flows downward and is thus separated completely.

The entire apparatus may be carried to the disposal pit, as indicated in McCulloch's Figure 3. The solids may be dumped into the pit and the fluid poured anywhere that the sanitary officer may direct.

Plan 2.—A better apparatus may be made (Fig. 2) of a strong metal bucket the size of that now in use, with metal seat and hinged lid.

Mr. Penfrase of the J. L. Mott Iron Works suggests that a pressed steel bucket would be more economical, because lighter and more durable than galvanized iron.

The advantage of this metal arrangement is obvious. Even the cost, if this deserves to be considered when the welfare of our boys is to be promoted, must be less. Transportation and sanitary conditions also are improved by avoiding wood. This applies to the succeeding devices.

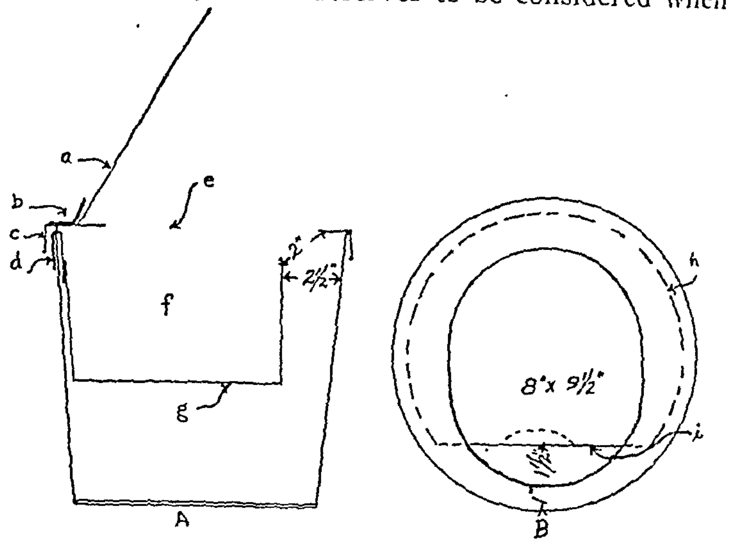

Fig. 2.—Metal bucket: *A*, section; *B*, top section; *a*, hinged cover; *b*, stop to make cover self closing; *c*, detachable cover; *d*, support holding feces bucket; *e*, opening, 8 by 9½ inches; *f*, feces bucket, with a capacity of 1½ gallons; *g*, urinal, with a capacity of 2 gallons; *h*, cover of bucket; *i*, front of feces bucket.

The foregoing buckets may readily be conveyed to the trenches when they are first constructed. When, however, the trenches are fairly well established, the following devices present advantages that appear to me obvious.

Plan 3.—Noting in McCulloch's diagram (Fig. 1) showing arrangements for food, water and the handling of excreta that under "conservancy" the buckets are placed in close proximity to the urine pits, it occurs to me that Figure 3*A* presents an ideal plan. It shows a septum with sufficient space for urinating, leaving the entire posterior compartment for the solids. The urinal portion terminates in a tube sufficiently long to fit loosely in a wooden, earthware or galvanized iron box or in one of the cones illustrated in Figure 4 of McCulloch's article rising from the urine pit.

The bucket and covers now in use may be continued with the exception of the added urinal septum, which is easily soldered on or riveted to the anterior part of the bucket. In this plan, the urine soakage pit must obviously be made larger.

So far I have suggested the continuation of the buckets now in use. I venture to add the following for the careful study of our military hygienists:

Plan 4.—When the bucket is carried to the disposal pit, the wooden fly proof cover may be left in the trenches, if the feces are covered by a cardboard shaped to the bucket. This would prevent odor and access to flies. A rack for holding a supply of these light covers is provided on the frame support.

A still greater improvement would be to place a waterproof paper container within the feces bucket. This would obviate the disagreeable and unwholesome scraping and cleansing of the bucket after the mass has been dumped into the disposal pit, and save its wearing.

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[1] McCulloch, C. C.: Sanitation in the Trenches, The Journal A. M. A., July 14, 1917, p. 81; July 21, 1917, p. 183.

Before removal, the solid excreta are covered with the cardboard cover, and other refuse of light character is thrown on it to fill the bucket. The bucket, now holding at least threefold more material than in the method illustrated in McCulloch's Figure 3, may be conveyed just as readily to the disposal pit and there dumped for incineration, etc.

Care must be taken not to break off the tube at the lower end of the urinal compartment. It should be made strong, rectangular, and should fit loosely into the urine soakage pit entrance.

Plan 5.—For trenches that are being occupied for long periods, as now in Flanders, the following arrangement offers obvious advantages:

As indicated in Figure 3*B*, the urinal portion is made separate, and is secured to the corner supports of the frame anteriorly. The feces bucket is flattened to have its anterior wall correspond to the shape of the posterior wall of the urinal. For additional security and prevention of spilling between the two walls, a flange is cut in the anterior wall of the septum to fit firmly but loosely over the posterior cut out wall of the urinal. The latter is so arranged that it terminates in a strong tube. In this plan the feces bucket alone is removed, the feces being covered with a paper or metal lid. If the bucket has been lined with paper, the arrangement is obviously ideal.

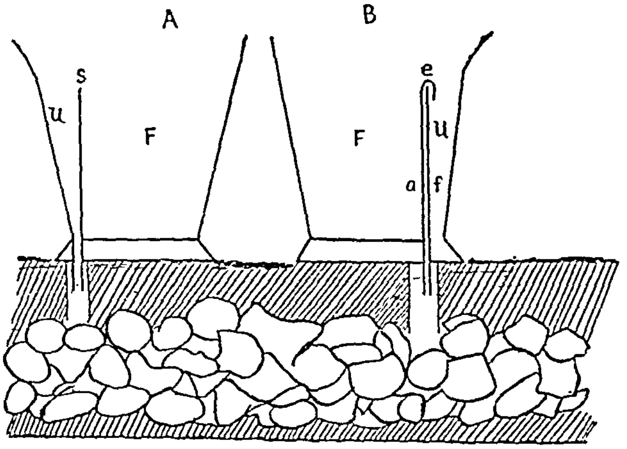

Fig. 3.—Permanent bucket, used in established trench construction: *F*, feces bucket; *U*, urinal; *s*, septum forming a urine conduit anteriorly; in *B*, separate urinal is secured to frame, and feces bucket is united to it by a flange; *e*, anterior part of feces bucket hooked on posterior portions of stationary urinal; *a*, anterior wall of feces bucket; *f*, posterior wall of separate stationary urinal.

In Plans 4 and 5 the feces bucket has its capacity increased about 33 per cent., which means less frequent emptying, and consequently less exposure to the enemy's fire, less labor, and more comfort for all concerned. The base under the bucket, shown in Figure 2 of McCulloch's article, is omitted in my device, in order to facilitate transportation in large quantities by sliding the bucket into the preceding one, forming nests.

The man behind the gun is made more efficient and more safe, the chief considerations.

Health a Community Asset.—Health is not the property of the individual who enjoys it, but of the community; disease menaces not only the sufferer, but all with whom he may come in contact.—Bertha Ott, *Public Health News* (N. J.).

New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application. W. A. Puckner, Secretary.

SILVER PROTEIN COMPOUNDS

Silver protein compounds possess the antiseptic action of silver nitrate to some degree. They do not precipitate proteins and are relatively or entirely nonirritant. They are frequently used as substitutes for silver nitrate, especially for the prophylaxis and treatment of the sensitive mucous membranes, particularly in gonorrhea, conjunctivitis and other infections of the urethra and of the eye, ear, nose and throat.

To prepare solutions of silver protein compounds the substance is sprinkled on distilled water and allowed to dissolve; in this way the formation of lumps, which dissolve slowly, is avoided.

SILVER PROTEIN-SQUIBB.—A compound of silver and gelatin, containing 19 to 23 per cent. of silver in organic combination.

Actions and Uses.—See general article on Silver Compounds, under Silver Protein Compounds.

Dosage.—Silver protein-Squibb is used in solutions containing 1 to 25 per cent., or more. It is also used in the form of bougies or suppositories.

Manufactured by E. R. Squibb and Sons, New York. No U. S. patent or trademark.

Silver protein-Squibb is produced by the interaction of silver oxide and gelatin in the presence of an alkali at a temperature of 80 to 100 C. When combination has occurred, the solution is concentrated in vacuo and the product sealed.

Silver protein-Squibb occurs in the form of black, lustrous, odorless, non-hygroscopic scales. It is very soluble in distilled water; insoluble in oils and alcohol.

No precipitate is produced when sodium chloride solution is added to an aqueous solution of silver protein-Squibb. An aqueous solution of silver protein-Squibb does not coagulate albumin; it is decomposed with precipitation by addition of free acids; ferric chloride decolorizes the solution.

Place about 0.5 Gm. silver protein-Squibb, weighed accurately, in a Kjeldahl flask together with 10 Gm. potassium sulphate and 10 Cc. of strong sulphuric acid and heat until the contents are colorless or only faintly yellow and allow to cool. Dilute the contents of the flask to about 100 Cc. with water, add ferric ammonium sulphate *test solution* as indicator and titrate with tenth-normal potassium sulphocyanate volumetric solution. The silver content corresponds to not less than 19 per cent. nor more than 23 per cent. of metallic silver (1 Cc. tenth-normal potassium sulphocyanate is equivalent to 0.010788 Gm. Ag).

ARSENPHENOL-AMINE HYDROCHLORIDE.—Arsenphenol-Aminae Hydrochloridum.—$HCl.NH_2.OH.C_6H_3As:As.C_6H_3.OH.NH_2HCl+2H_2O$.—The hydrochloride of 3-diamino-4-dihydroxy-1-arsenobenzene, corresponding to 31.57 per cent. arsenic (As).

Actions, Uses and Dosage.—The same as those of salvarsan (see New and Nonofficial Remedies, 1917, p. 45).

Arsenobenzol (Dermatological Research Laboratories).—A brand of arsenphenol-amine hydrochloride.

Manufactured by the Dermatological Research Laboratories, Philadelphia Polyclinic, Philadelphia, Pa. (General Drug Company, New York City). No U. S. patent or trademark.

Arsenobenzol (Dermatological Research Laboratories), 0.6 Gm. Ampules.—Each hermetically sealed ampule contains 0.6 Gm.

ACETYLSALICYLIC ACID (See N. N. R., 1917, p. 265).

Acetylsalicylic Acid-Milliken.—A non-proprietary brand complying with the standards for acetylsalicylic acid. Sold only in the form of capsules and tablets (see below).

Acetylsalicylic Acid-Milliken Capsules, 5 Gr.—Each capsule contains acetylsalicylic acid-Milliken 5 grains.

Acetylsalicylic Acid-Milliken Tablets, 5 Gr.—Each tablet contains acetylsalicylic acid-Milliken 5 grains.

Manufactured by Jno. T. Milliken & Co., St. Louis.

Acetylsalicylic Acid (Aspirin), Monsanto.—A non-proprietary brand complying with the standards for acetylsalicylic acid.

Manufactured by Monsanto Chemical Works, St. Louis.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

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SATURDAY, NOVEMBER 17, 1917

THE ALLEGED FORMATION OF CONNECTIVE TISSUE FIBERS FROM FIBRIN

In the progress of scientific theories it is not uncommon to find opinion swinging alternately back and forth between two seemingly conflicting views, until a sufficient accumulation of facts finally permits an incontrovertible judgment to be formed. Something of this sort seems to be going on in relation to a debated feature of wound healing. The generally prevailing view, as was pointed out some time ago in The Journal,[1] has been that the fibrin, in wounds healing by first intention, forms a temporary tissue which holds the wound surfaces in place and stops up the wound, thus preventing infection. Later the fibrin disappears, not by liquefaction, but through an actual consumption by the new tissue cells, which show a positive chemotropism to the fibrin mass and are thus attracted into the fibrin clot in large numbers. The permanent tissues that go to fill the wound space are then formed by these cells through an intracellular action.

Baitsell[2] of Yale University has observed that a fibrin clot formed from plasma, under conditions in which the now familiar "tissue cultures" are carried out, may be transformed into a fibrous tissue which resembles connective tissue. Sometimes the plasma clot surrounding the embedded living tissue became almost completely transformed, by a fusion and consolidation of the fibrin elements, into the new fibrous tissue. Similarly, in experimental wounds on frogs there was a coagulation tissue formed by the clotting of the blood and lymph, and in this a typical fibrin net was present. Later this fibrin net was directly transformed into a new fibrous tissue containing bundles of wavy fibers as noted above. In fact, this process was found to be identical with that which had been previously found to take place in the fibrin clots in living cultures of adult frog tissues.

Lambert,[3] while admitting that in their physical character the newly formed fibrils resemble the collagen fibrils of true connective tissue, believes that the resemblance is a superficial one and that it is not of importance in a differential study. The question of the participation of connective tissue cells in the genesis of such fibrils in healing wounds is at issue. In new experiments in which living tissue has been completely excluded, Baitsell[4] has now shown the formation of a fibrous tissue from a plasma clot in direct response to the influence of purely mechanical factors of various kinds. The experiments have eliminated all possibility of the new fibrous tissue's being formed by cellular action. The structure of the new fibrous tissue as shown by a histologic study of the prepared material closely resembles that of regular connective tissue.

The fact, says Baitsell, that the new fibrous tissue is similarly formed in wounds, that is, by a direct transformation of the fibrin clot, where it functions as a regular connective tissue for a time at least, gives clear evidence that the transformation of the plasma clot is not an artefact, which occurs merely in tissue cultures and in clots that have been subjected to various external influences, but is a reaction which evidently plays an important part in wound healing in the frog. We have no conclusive evidence at present that the transformation of the plasma clot into the new fibrous tissue is more than a radical morphologic change. It is difficult to see how a chemical transformation of the protein fibrin net into a collagenous connective tissue could be brought about, and consequently there is the possibility that the new fibrous tissue serves only temporarily as a connective tissue and is later replaced by a permanent tissue formed by a cellular action of some sort. On *a priori* grounds, however, there would appear to be no good reason for supposing that a tissue such as the new fibrous tissue, which is typical in its structure and which functions normally in wounds, would ever be replaced by another tissue.

The observation that the extent of this transformation of a fibrin-containing clot can be controlled by such purely mechanical factors as tension or pressure, so that filaments or rods of fibrin change to wavy fibrillae which unite to form heavy fibrous bundles, is not explained by the theory of the intracellular origin of connective tissue fibers. The chemist might be of assistance here in explaining the seeming contradiction of forming one kind of albuminous structure out of a totally different one. Baitsell is convinced that morphologically, at least, the fibrin net can by fusion and consolidation be converted into a fibrous tissue which in its morphologic structure, to say the least, is apparently identical with normal connective tissue of the frog. He even suggests that in response to various mechanical factors a reaction of this kind may play an important part in the formation of the connective and supporting tissues in the development of the individual. Reserving final decision, we shall await the further contributions to this important subject with interest.

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[1] A Debated Feature of Wound Healing, editorial, The Journal A. M. A., March 17, 1917, p. 854.

[2] Baitsell, G. A.: The Origin and Structure of a Fibrous Tissue Which Appears in Living Cultures of Adult Frog Tissues, Jour. Exper. Med., 1915, **21**, 455; The Origin and Structure of a Fibrous Tissue Formed in Wound Healing, ibid., 1916, **23**, 739.

[3] Lambert, R. A.: On the Question of the Transformation of Fibrin into Fibrous Tissue in Tissue Culture Preparations, Proc. Soc. Exper. Biol. and Med., 1916, **14**, 5.

[4] Baitsell, G. A.: A Study of the Clotting of the Plasma of Frog's Blood and the Transformation of the Clot into a Fibrous Tissue, Am. Jour. Physiol., 1917, **44**, 109.

THE SOLDIERS' AND SAILORS' INSURANCE LAW

What will become of the kiddies and their mother if I am killed? What will become of them and me if I am permanently disabled? As between my country and my dependent family, where does my duty lie at this stage of the present emergency? These are questions that have bothered many of the medical men and others who have responded to the call to the colors, and the absence of a satisfactory answer has prevented a considerable number from responding. The soldiers' and sailors' insurance act, passed by Congress, Oct. 6, 1917, and the regulations promulgated, October 15, under authority of that act, concerning governmental insurance, will encourage those who have already entered the service, and will doubtless impel many to enter who have been in doubt as to the line of duty.

The act guarantees to every medical officer (or in event of his death then to his wife, children and dependent mother, if there be any), certain stated compensation, during the disability of the officer, or during the dependency of the widow, children or widowed mother, as the case may be. During such disability the disabled officer will be entitled also to medical, surgical and hospital services, with necessary supplies, at government expense. And should his disability be such as to prevent him from following his profession, provision will be made for his education and training at the cost of the government in some available means of livelihood, so far as may be practicable, with the express provision that individual success in adapting oneself to such a means of livelihood shall not result in a reduction in the amount of the money compensation or in the medical care to which the disabled officer is entitled.

The protection described in the preceding paragraph belongs to every medical officer and to the dependents named, as a matter of right; but if he desires to be further fortified against disaster, he may accomplish that result through the system of governmental insurance that the act establishes. Nominally such insurance is at the expense of the insured; but as the rates of insurance are computed merely on a peace basis, the government assuming all of the added risk arising out of the war, and as the government assumes all of the expenses incident to administration of the insurance system, the insured will obtain protection at a low rate. As all policies are convertible at the close of the war, without medical examination, into insurance policies of ordinary standard types, premiums paid for protection during the war will not be lost. Ordinarily application for insurance must be made within 120 days after entering the service; but men in the service, April 6, 1917, are by the terms of the act automatically insured up to and including Feb. 12, 1918, by which date they must have applied for such insurance as they desire, in the usual manner. Application can be made, however, before the latter date, in which event the insured will have the benefit of such insurance as he may select in lieu of the standard ad interim insurance named in the act.

The existence of such compensation as the law provides in all cases of death and disability, and the possibility of greatly adding by voluntary insurance to the protection thus afforded, should materially increase the number of physicians offering themselves for military duty, and should inspire all with a keener appreciation of the fact that the government has, after all, a sympathetic understanding of the needs of its fighting forces, and may be depended on to supply such needs.

PITUITARY FUNCTIONS

Broadly speaking, there are two ways in which the possible function of glands or organs of the body can profitably be studied. One of these consists in examining the physiologic properties of extracts of the tissue under consideration from the standpoint of discovering some "active principle" or potent constituent with which its normal performance may be linked. In the case of the thyroid, for example, this plan has been partially successful. The administration of thyroid-parathyroid products can produce results in certain abnormal conditions of the organism, such as cretinism, that lead to definite convictions regarding at least some of the functions of the thyroid apparatus. However, it must be frankly admitted that the evidence regarding even the vague details of precisely what the thyroid extract therapy accomplishes in such instances is at present nothing more than a matter of conjecture. The study of the suprarenals seems to have been more successful from the standpoint of studying the potency of its constituents and its secretion into the blood. Epinephrin has established a place in physiology, pharmacology and therapy. The ablation of the suprarenal glands which produce it is followed by death. Nevertheless the recent investigations of Stewart and Rogoff[1] of Cleveland must awaken considerable doubt as to whether epinephrin itself is essential for the continuance of life.

The second method of investigation referred to consists in partial or complete removal of an organ under investigation, and observation of the effects of this procedure. This scheme has given decisive answers in the case of a number of structures in the body. The indispensability of the parathyroid, pancreas or suprarenals, in contrast with the spleen or salivary glands, has thus been demonstrated. By extirpation experiments, much light has also been thrown on the relation of the sex glands to the development of secondary sexual characters. Yet the apparent negative results of many ablation experiments, as found in the study of the thyroid proper and the thymus,[2] for example, tend to awaken the belief that compensatory functioning in other parts may often obscure the real contribution of specific glands to the body's physiology after their extirpation or some damage to them.

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[1] Is Epinephrin Indispensable for the Organism? editorial, The Journal A. M. A., July 7, 1917, p. 40.

Although no single method of study has been entirely satisfactory in elucidating the complete story of glandular function, the operative removal of isolated structures has thrown a flood of light into many obscure places in physiology. Pathologic anatomy, the outcome of Nature's experiments in disease, has often supplemented the extirpation experiment or pointed the way to its meaning. All of this is brilliantly exemplified in the modern study of the pituitary body. Although some of the details of the results of experimental interference have been in dispute, the major features are at length confirmed. Following the lead of Paulesco, professor of physiology at Bucharest, who introduced the most successful method of accomplishing experimental surgical interference with the pituitary body, and of Harvey Cushing and his fellow workers in this country, Blair Bell[3] has added testimony that should help to complete the story in some of its most important aspects.

Before referring to the results of this English worker, it may be well to remind the reader that the pituitary body consists of two clearly differentiated parts which have separate modes of origin. The anterior lobe is distinctly glandular in character; the posterior lobe is developed from the nervous tissue with which it is more directly connected. There is no longer any doubt that complete loss of the pituitary body is speedily followed by death which cannot be attributed to mere shock; it is therefore an organ that is essential to life. All the investigators are now further agreed that neither partial nor complete removal of the posterior lobe causes any symptoms. The genital organs, the development of which seemed to be correlated in some way with the integrity of the pituitary, remain normal after ablation of the pars posterior, and young animals continue to develop after such an operation. Hence the secretion of the pars nervosa is, to quote Blair Bell, neither beneficial nor essential to life. Bell finds that partial removal of both anterior and posterior lobes likewise causes no symptoms, provided only a small portion of the pars anterior be removed. On the other hand, the removal of very large portions of the pars anterior is incompatible with life. Bell regards it as convincingly demonstrated now that it is the loss of this portion of the organ that proves fatal when total extirpation of the pituitary is practiced.

Cushing and his colleagues have discovered that when the anterior lobe is partially removed in young animals a condition of persistent infantilism with absence of sexual development is likely to occur. Bell has likewise noted genital atrophy under such conditions. The manifestations of dystrophia adiposogenitalis, which Cushing has described in animals after interference with the anterior lobe, could be produced by Bell in only one way, namely, by interference with or separation of the infundibular stalk. This apparently brings about a disturbance of the blood supply to the gland. As a result there is an insufficiency of the anterior lobe. The cells of this part become shrunken, atrophic and discrete—a state of affairs which, as Bell says, is always found in the human subject afflicted with the syndrome of dystrophia adiposogenitalis.

It has been held by histologic students of the pituitary that a secretion from the posterior lobe which is in close juxtaposition to the nervous tissues passes directly into the third ventricle. But Bell points out that the only real secretory cells of the posterior lobe—the cells of the pars intermedia—are derived from the same source as those of the pars anterior. Removal of the posterior pars proper does not remove true secretory cells. Separation of the stalk interferes with the blood supply of all these cells. It is henceforth necessary, says Bell, to look on the functions of the pituitary as a whole, and to consider this structure as one organ and not two. The fortuitous juxtaposition of the epithelial cells and the pars nervosa, he adds, has probably no relation to the vital functions with which the pituitary is concerned. Even if secretion from the pars nervosa does pass into the cerebrospinal fluid, as has been asserted, Bell believes there is not the slightest evidence to show that this is essential, beneficial or even the normal method by which the internal secretion is taken up by the animal economy. The blood stream is the real path for the distribution of the pituitary hormone.

Tumors in the neighborhood of the sella turcica may be imitated experimentally by the introduction of inert immobile masses. When they produce irritation, glycosuria and emaciation may result, as in the human subject. When the tumors interfere with the blood supply so as to initiate degenerative changes in the cells of the anterior lobe, they may give rise to the syndrome dystrophia adiposogenitalis. These facts now experimentally established represent a great step in advance in the elucidation of the obscure functions of a very small yet highly significant portion of tissue.

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[2] The Thymus and Rickets, Current Comment, The Journal A. M. A., this issue, p. 1700.

[3] Bell, W. B.: Experimental Operations on the Pituitary, Quart. Jour. Physiol., 1917, 11, 77.

URIC ACID INFARCTS IN THE NEW-BORN

The ready applicability of modern microchemical methods to the study of various types of nitrogenous compounds other than protein that circulate in the blood has at length made it possible to throw new light on a number of long debated questions regarding metabolism.[1] This now appears to be true in the case of the uric acid infarcts in the form of ammonium urates that are often found in the kidneys of the new-born during the first few days of life. That these infants excrete uric acid in unusual concentration and augmented amounts in the urine has long been known. This relatively and absolutely high output of uric acid has been correlated with associated conditions in the uric acid content of the blood by Sedgwick and Kingsbury[2] at the University of Minnesota. These investigators, as well as Slemons and Bogert[3] at the Yale Medical School, have found that the uric acid content of the blood at the conclusion of labor falls within the limits accepted as normal at other times. The figures obtained from maternal and placental circulation are identical for the uric acid in the blood of the mother and fetus. This indicates that it passes through the placenta by diffusion. In this respect, therefore, Slemons and Bogert remark, uric acid resembles other nitrogenous waste products, ammonia, urea, creatin and creatinin, which are found in equivalent amounts in both circulations. This conclusion also has the support of the findings in pathologic cases. Eclamptic mothers in whose blood the quantity of uric acid is two or three times that of the normal give birth to infants in whose blood the uric acid is correspondingly increased. Soon after birth, however, the condition changes. The content of uric acid in the blood the first three or four days after birth is higher than that of the blood of the same new-born at birth. Subsequently there is a marked decrease in this value at the end of from eight to eleven days from the value obtained (in each case with the same infant) from three to eight days earlier.

Sedgwick and Kingsbury point out that the parallelism between the high uric acid content of the blood of the new-born and the high excretion of this substance during the first three or four days of life is indirect evidence supporting the findings of Wells and Corper[4] and others (in opposition to the results of Schittenhelm and Schmidt[5]) that human fetal tissues possess no uricolytic power; for it would be difficult to imagine so great a production of uric acid if the tissues themselves possessed the power to destroy it. One naturally inquires respecting the genesis of this increment of uric acid. There is no occasion to assume a synthesis de novo, which would be contrary to all current ideas regarding the origin of uric acid. What are its purin antecedents in the new-born?

It is an attractive speculation to associate the increased presence of uric acid with a destruction of leukocytes naturally rich in purin-yielding nucleoproteins. At this period, when uric acid excretion is at its highest, rapid morphologic changes are stated to occur in the blood of the new-born. Sedgwick and Kingsbury speak of the disappearance of the nuclei of many of the red cells, the change in proportion from a predominating number of polymorphonuclear neutrophilic cells to a corresponding predominance of lymphocytes, and the striking decrease in the leukocyte count of the peripheral blood.

The existence of an undue amount of circulating uric acid soon after birth thus seems to be established. The more problematic features of the question are expressed by the Minneapolis investigators as follows: Whether the decomposition of nucleoprotein material, which must be looked on as the cause of this uric acid increase in the blood, is related to the striking changes in the blood cells, particularly in the changes in the partition of the white corpuscles taking place at this time, or to nucleoprotein destruction in other parts of the body, as yet unknown, or to both, must be left to the future to decide. These results fit in well, however, as the connecting link in the theoretical chain of early leukocytosis—fall in leukocytes—flood of uric acid in the blood—high uric acid excretion—uric acid infarcts.

Current Comment

OXALIC ACID IN FOODS

Oxalic acid is widely distributed both in the free state and in combination with bases throughout the plant kingdom. As a result, oxalic acid is introduced into the body as a constituent of vegetable foods. The quantities thus involved are in general exceedingly small and are, so far as is known, physiologically harmless. The acid doubtless occurs in many instances as calcium oxalate in the alimentary tract and escapes absorption. Only in a few plants does the content of oxalic acid reach more significant proportions. Recently attention was called, however, to unexpected fatalities occasioned by eating the leaves of rhubarb in place of spinach. Although the chance for such experiences is doubtless extremely limited on account of the food habits of civilized peoples, it is nevertheless desirable to know something more detailed about the distribution of oxalic acid so that every possibility of harm may be averted. In these days when new foods and unusual sources of nutriment are being urged on housewives by enthusiasts eager to promote the conservation propaganda, one may conceive not only of the chance of employing a product with an unexpectedly high content of oxalic acid, but also of a possible augmented content of the toxic substance by the chance use at the same time of several products containing small amounts. Recent analyses by Arbenz[1] which have become available in this country give the following statistics, in terms of oxalic acid per kilogram of air dry spice or ready-to-eat vegetable, respectively: black tea 14.3, cocoa 4.8, pepper 4.5, rhubarb 3.2, spinach 2.9, sorrel 2.7, dry figs 1.2, roasted coffee 0.8, roasted chicory 0.7, raspberries 0.5, beans 0.45, potatoes 0.4, beets 0.3, currants 0.3, pears 0.2, bilberries 0.2, oranges 0.1, asparagus 0.09, cherries (with seeds), tomatoes and wine grapes 0.08, rutabagas 0.07, cauliflower 0.06, onions 0.05, Brussels sprouts 0.04, endive and melons 0.03, mushrooms, peaches, flour, lemons, celery, plums and apples, a trace; corn meal, rice and chestnuts, none. An added value of these figures lies in the fact that since oxalates in the urine are in part derived from the dietary oxalic acid which is resistant to oxidation in the body, in cases of oxaluria, physicians are accustomed to prohibit those foods which contain most oxalic acid and which are eaten in sufficient abundance to make the total amount thus ingested worth considering. Ordinarily the proscribed dietary articles include tea, coffee, cocoa, spinach, rhubarb, sorrel, pepper, beetroot and beans.[2] It should be borne in mind, however, that not all of the excreted oxalate is necessarily associated with a food source. Some of it may have a microbiotic origin in the alimentary tract; and its possible genesis through imperfect metabolism of certain organic acids is still debated.

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[1] Folin, Otto: Recent Biochemical Investigations on Blood and Urine, The Journal A. M. A., Oct. 13, 1917, p. 1209.

[2] Sedgwick, J. P., and Kingsbury, F. B.: The Uric Acid Content of the Blood in the New-Born, Am. Jour. Dis. Child., August, 1917, p. 98.

[3] Slemons, J. M., and Bogert, L. Jean: The Uric Acid Content of Maternal and Fetal Blood, Jour. Biol. Chem., 1917, 32, 63.

[4] Wells, H. G., and Corper, H. J.: Jour. Biol. Chem., 1909, 6, 321.

[5] Schittenhelm, A., and Schmidt, G.: Ztschr. f. exper. Path. u. Therap., 1907, 4, 424.

THE THYMUS AND RICKETS

It is practically useless to turn to the textbooks for helpful information regarding the functions of the thymus. At best one will find a series of unverified conjectures, debated assumptions, or a frank statement of our ignorance of the real purpose of this organ. The natural association of the thymus with early life has led to the conjecture that the gland plays a part in growth; for it becomes smaller and smaller as the rate of growth declines. The latest though by no means the final evidence indicates that former statements implicating a retardation of growth after removal of the thymus cannot be substantiated by experiment. Halnan and Marshall,[3] for example, found that extirpation of the gland from young animals had no effect on their growth, even when the testes were removed simultaneously. Furthermore, in observations on castrated animals they could find no evidence of any compensatory mechanism between the testes and the thymus. In recent years another possibility of decided practical importance has been given some attention through the assertions of continental investigators.[4] They have reported changes after experimental thymusectomy that correspond somewhat closely to those observed in rickets; and thus the question of the relation of the thymus to bony growth and its pathologic manifestations is again brought into prominence. In an investigation conducted at the Physiology Department of Glasgow University under the new national health insurance medical research scheme, Renton and Robertson[5] have come to a seemingly convincing conclusion in this matter. They have removed the whole thymus successfully in a series of animals which survived long enough to permit adequate observations on their growth in comparison with suitable control animals. Renton and Robertson conclude that thymusectomy of itself does not appear to cause any symptoms. Spontaneous rickets in subjects not operated on gives rise to essentially the same symptoms as the European writers have attributed to removal of the organ; that is, thymusectomy does not make young animals more susceptible to spontaneous rickets, and if they develop it, they do so at the same time and in the same manner as control subjects. The British investigators sum up their findings by the decision that removal of the thymus cannot be held responsible for the onset of rickets or similar bony changes. The alleged pathologic manifestations that have been credited to loss of the thymus have in reality presumably been due to the development of spontaneous rickets in young animals. Thus another promise of discovering a function for this organ has been shattered.

THE RELATIVE VALUE OF FRUIT JUICES

Fruit juices are rapidly finding their way into the daily life of the American people. A few years ago they were limited to the delicacies of the home or to syrups of the soda fountains. Today orange juice and grape juice in particular have found a widespread and growing popularity as agreeable beverages. It is scarcely an exaggeration to say, as does one of the large manufacturing companies in advertising its product, that grape juice has become the national drink. The temperance wave that has swept over this country, taken in conjunction with a vigorous and highly effective advertising campaign on the part of various producers, has helped to secure favor for a refreshing and wholesome beverage. The shortage of sugar at present and the prospect of a necessary restriction in the output of syrups and similar "essentials" of the "soft-drink" industry are likely to increase still further the use of palatable fruit juices. In addition to organic acids which lend a tart flavor to them, these beverages, provided directly by nature, contain a considerable portion of sugars which lend a food value to the product. Thus a glassful of grape juice measuring 7 ounces (210 c.c.) will furnish about 200 calories in the form of sugar; and orange juice is about half as rich in food value. Recently the juice of the loganberry has begun to claim recognition in this category. Analyses[6] made at the Oregon State Agricultural College at Corvallis indicate that this fluid likewise contains from 6 to 8 per cent. of sugar in the acid juice. This lends to it a fuel value of approximately 300 calories to the liter, presumably in the form of available carbohydrates.

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[1] Arbenz, E.: The Quantitative Determination of Oxalic Acid in Foods and Condiments, Chem. Abstracts, 1917, **11**, 2374.

[2] See, for example, Tibbles, W.: Dietetics, or Food in Health and Disease, Philadelphia, 1914, p. 76.

[3] Halnan, E. T., and Marshall, F. W. A.: On the Relation Between the Thymus and the Generative Organs, and the Influence of these Organs on Growth, Proc. Roy. Soc. London (B), 1914, **88**, 68.

[4] Klose and Vogt: Klinik und Biologie der Thymusdrüse, 1910. Matti: Ergebn. d. inn. Med. u. Kinderh., 1913, **10**.

[5] Renton, J. M., and Robertson, Madge E.: Thymusectomy and Its Relationship to Rickets, Jour. Path. and Bacteriol., 1916, **21**, 1.

[6] Daughters, M. R.: The Composition of Loganberry Juice and Pulp, Jour. Indust. and Engin. Chem., 1917, **9**, 1043.

HOOKWORM IN THE MINES OF CHINA

The danger of hookworm infection in mines is well known. Hookworm disease is prevalent in many of the mines of California, China, France, Hungary, Sicily, South America and Spain. Germany, it is said, has spent over $2,500,000 in direct outlay to control hookworm infection in a few of its mines. The disease has been brought under reasonable control in the mines of Belgium and Wales. The investigations of the International Health Board of the Rockefeller Foundation have brought to light a rather unexpected source of perennial reinfection of mines that applies to China in a way scarcely realized in the other countries mentioned. As stated recently in THE JOURNAL,[1] the hookworm problem in China presents unique features because of the widespread employment of human excrement as a fertilizer. The disease is thus easily spread into the agricultural districts. It happens that more than a hundred thousand miners, largely recruited from farmers who have worked barefoot in the moist, larva-infected soil, are employed in the mines of Hunan Province alone. The cooperation of the International Health Board has been solicited to provide measures for the control of a difficult situation brought about by this unusual combination of circumstances.

HEAT LOSS AND WATER ECONOMY IN THE BODY

In 1614, Sanctorius wrote, "He only who knows how much and when the body does more or less insensibly perspire will be able to discern when or what is to be added or taken away either for the recovery or preservation of health."[2] Yet the story of this factor of insensible perspiration, the amount of water lost from the body in vaporization, has been most inadequately written. The part played by water in the body is ordinarily overlooked by the clinician except so far as it is expressed in the volume of the urine or in the genesis of an edematous condition. The water which acts as a solvent for the body's waste may thus, perchance, be taken into consideration; but of the water lost from the organism through the respiratory passage and the skin and its rôle in the dissipation of heat from the body, little is known and less is mentioned. The pathway for the loss of heat naturally varies with the temperature of the surrounding air. At a low temperature there is little evaporation of water. Heat is lost in other ways. At an environmental temperature as high as that of the body or exceeding it, there can be no loss of heat by conduction and radiation, so that water evaporation must remove the whole of it. The study of a large number of persons in respiration calorimeters, in this country in particular, has furnished data for estimating some of the factors just referred to.[3] Under an average environmental condition with medium humidity, normal men from 20 to 50 years old excrete on an average 29 gm. (1 ounce) of water an hour — about 700 gm. a day — through the skin and the air passages. In this manner approximately one quarter of the total heat produced is eliminated. Few normal men exhibit variations of more than one-tenth from this figure. According to Soderstrom and Du Bois,[3] the output of water as insensible perspiration is very little affected in disease. When the heat production is increased, the body responds and dissipates the usual percentage of calories in the vaporization of water. When it is necessary to get rid of unusual amounts of heat, the percentage lost in vaporization is increased. Edema seems to have no effect on the water output through the skin; and cardiac and nephritic patients on the whole give figures close to the normal. Just as there is little realization of the extent of the "invisible" water output, so there is too often a failure to appreciate and a tendency to neglect the water content of the intake in the form of seemingly solid food. An illustrative instance has been cited by Soderstrom and Du Bois in the following meal, which might well be given to a nephritic patient: a small dish of farina, a boiled potato, a portion of tomato and lettuce salad, a small dish of junket, and an apple. This ration contains something more than 23 ounces (690 gm.) of water, a quantity sufficient to carry away the heat that leaves in "insensible perspiration" in the ordinary person.

Health of Food Handlers.—During the examination of the food handlers of New York City, made through the cooperation of the health department and the American Museum of Safety, which included the examination of 44,042 individuals examined at the Occupational Clinic and 33,000 by private physicians, Dr. Louis I. Harris and Mr. Dublin of the Metropolitan Life Insurance Company made an intensive examination of 1,748 food handlers considered typical of the entire number. These included waiters, waitresses, cooks, male and female, other kitchen employees and bakers. In the entire group there were ten cases of active tuberculosis, twelve of suspected and three of arrested tuberculosis. Forty-one persons gave evidence of active or suspected syphilis, of which thirty-seven were among waiters. This group furnished forty-six persons with flatfeet and an equal number with varicose veins. Among the 211 waitresses examined, 65.8 per cent. showed anemia; 62 per cent. had varicose veins, and 17.1 per cent. were reported as suffering from some form of menstrual disorder. Four waitresses were found to have syphilis. The predominating defect among cooks was organic heart disease, there being thirty-two who showed cardiac disease. Of the cooks, 161 had marked disturbance of the digestive functions. Among bakers no tuberculosis or active syphilis was found, but there were thirty-eight cases of chronic bronchial conditions; thirty had organic heart disease and thirty-three, anemia. The study is valuable as demonstrating the importance of the examination of food handlers both from the standpoint of protection of the health of the community and for the opportunity it offers for the study of occupational groups. Another point brought out in the course of this study is the lack of uniformity of standards and methods of classification used by the various workers in the field of industrial hygiene.

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[1] Problems in the Campaign Against the Hookworm, editorial, THE JOURNAL A. M. A., Nov. 10, 1917, p. 1611.

[2] Sanctorius: De medicina statica aphorismi, Venice, 1614, Aphorism III, translated by Lusk, Graham: The Elements of the Science of Nutrition, Philadelphia, 1917, p. 18.

[3] The literature is reviewed by Soderstrom, G. F., and Du Bois, E. F.: Clinical Calorimetry, Twenty-Fifth Paper, The Water Elimination Through Skin and Respiratory Passages in Health and Disease, Arch. Int. Med., May, 1917, p. 931, from which some of the facts quoted are taken.

Dr. Robert Fielig Library

Medical Mobilization and the War

MEDICAL OFFICERS IN ACTIVE SERVICE

At the present time there are approximately 12,500 medical men in active service. This includes Medical Corps officers (a little less than 550), medical officers of the National Guard Army, and officers of the Medical Reserve Corps. Up to date approximately 17,900 physicians have been recommended for commission in the Medical Reserve Corps.

AMERICAN WOMEN'S WAR HOSPITALS UNIT

The American Women's Hospitals, of which Dr. Rosalie Slaughter Morton is chairman, was organized by the War Service Committee of the Medical Women's National Association of the United States. Women physicians to the number of 1,200 have registered with the committee, for home and foreign service. Already a number of physicians have been sent abroad to work under the authority of the American National Red Cross with which the American Women's Hospitals works in close cooperation.

MEDICAL OFFICERS' TRAINING CAMP AT FORT BENJAMIN HARRISON TO BE DISCONTINUED

The Medical Officers' Training Camp at Fort Benjamin Harrison is being discontinued and the medical officers transferred from the training camp to other stations. Those who have not yet completed their instruction go to Fort Riley and to Camp Greenleaf at Fort Oglethorpe. Orders have been issued from the Surgeon-General's Office, assigning Colonel Ashburn and several of the other instructors to the Surgeon-General's Office and distributing the remaining instructors among the other training camps. The ambulance and field hospital units undergoing training at the training camp are now testing their ability for sustained marching. Ambulance Companies Nos. 15 and 17, with one field hospital unit and headquarters, all of which are motorized, were ordered to start on November 9 on a seven-day hike to Georgia. Company No. 17 and the headquarters unit will go to Camp Greenleaf, while the other unit will go to Camp Oglethorpe. At the same time, two ambulance companies and two field hospitals, the sixth and fourteenth in each case, provided with mule motive power, received similar instructions.

SALVAGING CLOTHES FROM BATTLE-FIELDS AND CAMPS

The English War Office has set up at Dewsbury a department for the purpose of repairing, restoring and utilizing old uniforms and fabrics recovered from the army and navy. All discarded clothing and fabrics of every sort from the battlefields and camps and from the navy are collected, put into bags and shipped to Dewsbury, where the material is sorted into that which can be cleaned, repaired and made usable, and that which must be discarded as rags and put through processes by which it can be made useful as new material. As many as ninety truckloads of this material have been received at this station in a single day. About 350 women are employed as sorters, who pick out the garments that are in condition to be repaired and used again. All articles capable of being restored are sent to a local firm of dyers and cleaners, by whom they are cleaned. Then they are repaired and reissued to the troops or for the use of German prisoners of war. With a high standard of efficiency and a large turnover, the cost for each article, including large repairs, amounts to about 28 cents. In this way, it is said in the report regarding this matter from U. S. Vice Consul Hamilton C. Claiborne, Bradford (*Commerce Reports*, November 5) that $300,000 worth of uniforms have been salved up to the present. In ten months, a total value of material received and disposed of at Dewsbury was over $3,000,000, and the net profit shown on such material at all the stations amounts to a very large sum. Details are given in the report of the amount of material received, the various channels in which it is disposed of, and the uses to which it is put.

CALIFORNIA'S VENEREAL DISEASE PROGRAM

Last summer there was held in San Francisco a conference on prevention of venereal diseases in California, in the interest of soldiers, sailors, and civilians. The program then outlined has been embodied in regulations recently by the state board of health.

The regulations for the prevention of syphilis and gonorrhea require those in attendance on a case of either of these diseases, or a suspected case, to report the case immediately to the local health officer, who in turn will report it to the state board of health. Such reports are to be made by patient's office number or initial only, but the number or initial used must refer definitely to the physician's record of the case. Physicians are expected to furnish, when reporting such cases, any available data that may be useful regarding the sources of infection and must teach the patient how to prevent the spread of the disease, its seriousness, the necessity for prolonged treatment, and must furnish the patient with approved literature on the subject.

Every city, county, and other health officer is directed to use every available means to ascertain the existence of syphilis and gonorrhea within his jurisdiction. He is required to investigate immediately all reported or suspected cases of syphilis in the infective stage, and of gonorrhea, and may inspect, examine, isolate, and disinfect persons, places and things. He is directed to make examinations of persons reasonably suspected of having syphilis in the infective stage or gonorrhea All prostitutes are to be regarded as coming within the suspected class, but the health officer is forbidden from issuing to such women certificates of freedom from venereal disease. The health officer may require the submission of specimens from cases or suspected cases of syphilis or gonorrhea, for the purpose of examination at a state or municipal laboratory, and it is the duty of the attending physician to furnish such specimens when called on to do so.

Local health officers are directed to isolate reasonably suspected persons whenever isolation is necessary to protect the public health. In establishing isolation the health officer must define the limits of the area within which the isolated person and his immediate attendant shall remain. Isolation is not to be terminated until the patient has become noninfective, unless permission is given by the state board of health or the secretary of that board. Cases of gonococcus infection are to be regarded as infective until at least two successive smears taken not less than forty-eight hours apart fail to show gonococci. Cases of syphilis are to be regarded as infective until all lesions of the skin and mucous membrane are completely healed.

Health officers are directed to use every proper means of repressing prostitution, and are to report to the Bureau of Venereal Diseases any unusual prevalence of syphilis or gonorrhea and any unusual local conditions tending to favor the spread of these diseases.

CLINICS AND HOSPITALS

In preparing a list of approved venereal disease clinics and hospitals, the state board of health is aiming to raise the standards of some of the existing dispensaries and hospitals, to encourage the formation of additional public dispensaries where needed, and to assist persons needing institutional treatment to ascertain which institutions have adequate staffs, equipment and standards. Minimum standards are prescribed for dispensaries and for hospitals.

A dispensary, to be approved for the treatment of syphilis, must treat patients suffering from that disease in a separate department or in the department of dermatology, but there is no analogous restriction with respect to dispensaries for the treatment of gonorrhea. In either case, however, the dispensary must be open at least three times a week, day or evening, and the staff must be adequate both in number and in training. Rooms must be well arranged, and every dispensary must have at its disposal beds for isolation and treatment. Laboratory facilities and equipment, with instruments and apparatus, must be provided. In cases of syphilis, microscopic examinations of the suspected initial lesions must be made; Wassermann tests must be performed in the dispensary laboratory or other approved laboratory, and suitable tests and observations shall be made of all patients for a period of not less than two years after the conclusion of adequate treatment. Salvarsan or an accepted equivalent must be administered to all patients suffering from syphilis, unless there are contraindications.

In an approved dispensary for gonorrhea, systematic examination must be made of the discharges, and facilities for urethroscopic and cystoscopic examinations must be provided and be regularly employed by the attending clinicians. Patients must not be discharged as cured until after repeated negative clinical and microscopic examinations. Adequate facilities must be provided for asepsis and antisepsis.

In dispensaries of both kinds adequate records must be kept and an annual report must be made. The clinicians in attendance must themselves devote the amount of time necessary for intelligently informing new patients of the seriousness of their diseases, the necessity for treatment until cured, and the precautions to be taken to prevent the spread of the infection to others, and in addition the dispensary must furnish approved literature on the subjects. A dispensary will not be approved unless a social service department is maintained and adequate measures adopted to procure the regular attendance of patients. If it becomes necessary for any reason to discharge a patient still uncured, the patient must be referred to an approved clinic or to a reputable physician

In general the standards for hospitals for syphilis and gonorrhea are similar to those for dispensaries, but it is specifically provided that patients having venereal diseases must be accepted under the same conditions as other patients.

NEWS OF THE TRAINING CAMPS

At Fort Oglethorpe

Lieutenant McDonald of the Signal Corps has been detailed by the War Department to make a series of moving pictures of the work being done at Camp Greenleaf toward training civilian doctors for military work. If there are any physicians left in this country who imagine that all they have to do in order to serve in the Medical Corps is to change their civilian clothes for a uniform and begin "pushing pills" to the sick soldier, please advise them to see these pictures if they are ever exhibited in their communities. Let them see the workings of an ambulance company, field hospital, regimental or sanitary unit, and then wonder whether they could take charge and run one as smoothly as the trained man. Surprising as it may be to them, doctors are in charge of these outfits, have to run them, and are responsible for all properties connected with them, as well as the training of the enlisted personnel. Moreover, these doctors were untrained civilian surgeons or physicians four months ago.

Majors Van Wart and Owensby have been making a mental survey of the camp for the past three weeks.

Major L. Owen has been relieved from duty at Camp Greenleaf and assigned to the Surgeon-General's Office. The camp has suffered a distinct loss, for Major Owen was one of our most popular and efficient instructors.

Lieutenant-Colonel Talbott, M. C., has been assigned to Greenleaf as camp inspector. Colonel Talbott has had many years' experience in this line of work, and from the amount of interest he has inspired in the student body, we feel safe in predicting "more laurels for his crown."

Major William Pepper, M. R. C., formerly dean of the Medical Department of the University of Pennsylvania, has been made adjutant.

Major Alexander Abbott, M. R. C., has been placed in charge of the school of hygiene recently established at the camp.

Major Walter Weisser has been assigned as provisional director of field hospitals.

Major Bell, formerly connected with the Royal Army Corps, has given a series of lectures on his work in France. Major Bell's ability as a speaker and his unusual opportunities for observing the medical work done in France made his lectures the most interesting in the course.

The Camp Greenleaf Military Society was organized last Friday night. Col. Henry Page, M. C., the commandant, was elected honorary president, and Major Alexander Abbott, president. The aims, objects, etc., of this society are worthy of a more lengthy notice than can be given in this letter—so more about it another time.

Everything is being made ready for taking over the work of the M. O. T. C. at Forts Riley and Benjamin Harrison. The buildings of the R. O. T. C. will be turned over on November 27, which will give accommodations for an additional 5,000 men.

Lieutenant-Colonel Carswell has been relieved from duty with the field hospitals and ordered to San Antonio, Texas. Before leaving, Colonel Carswell was presented with a beautiful wrist-watch by the officers in his command, as a token of their appreciation of his untiring efforts in making the field hospitals one of the best outfits in the country.

Major M. Ashford, M. C., is convalescent from an attack of the grip, and has resumed command of the ambulance companies.

At Fort Benjamin Harrison

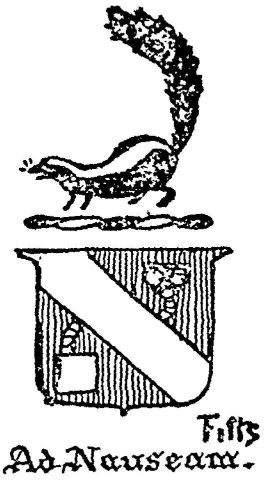
CLOSING OF THE CAMP

What is left of the members of the medical officers' training camp at this post will continue their training at Fort Oglethorpe, Ga., as the date for closing the camp here is at hand. The thousands of medical officers who have gone through the training at Fort Benjamin Harrison since the first of June are scattered far and wide. Most of them are still in this country, assigned to base hospitals, field hospitals and regiments. Not a few are in France or at embarkation points.

It is gratifying to the pride of the medical profession for the War Department to admit that the medical branch of the service is prepared to the highest point of efficiency of all. True, it was not necessary to teach us the most obvious part of our work—that of medicine and surgery—as none could receive commissions without first undergoing examination or furnishing evidence of a thorough medical education. However, it has been necessary to begin at the bottom in the education along military lines. Very few had any knowledge whatever of the military side of the life which it bids fair to believe will be theirs for three or four years. This they had to learn, and it has been accomplished in a remarkably short space of time.

GAS DEFENSE

The last of the military lessons, and perhaps one of the most interesting that has been introduced, is that latest flower of Kultur, the gas squad, the Legion of Frightfulness, its insignia a skunk with tail rampant, bar sinister, and the motto "Ad Nauseam."



Insignia of the Legion of Frightfulness.

Three instructors, a trio of frightfulness, descended as a gas cyclone from Fort Sill, Okla. With them arrived an assignment of the gas masks adopted by the United States Army for protection against the poisonous and other gases being used in the present war.

Poison gas was first used in modern warfare, April 22, 1915, by the Germans against a sector of fresh Canadian and French forces, with the double purpose of destroying the morale of the fresh contingents and causing casualties. This was followed by a fresh trial, defensive, against the French attack on the 26th, which was likewise successful. Its use soon became general. This was cloud gas, and as its efficacy depended definitely on atmospheric conditions, gas shells soon were substituted, and now constitute 30 per cent. of the shells used.

The objects in the use of gas are: (1) putting men out of action (casualties); (2) hampering men in artillery, delaying maneuvers; (3) preventing supports and supplies from being brought up, and (4) inspiring general terror.

The gas is used in the form of cloud gas and gas shells in the following varieties:

1. Lacrimatory—direct primary effect on the eyes.
2. Asphyxiating—direct corrosive and irritating action on the respiratory tree.
3. Paralysant—causing central nerve paralysis.
4. Miscellaneous—nauseating and blistering compounds.
5. Accidental—nitrous fumes and carbon monoxid from explosion of mines and high explosives.
6. Mixed.

To combat gas attacks, gas masks and warning are employed. The masks are box respirators of a regulation type. They consist of a canister containing layers of cotton, filters, charcoal, a neutralizing agent—soda lime—and an expiratory shutter valve. Masks are provided with mouthpieces, nose-clip and goggles, fastened into rubber tissue, to protect against tear gases. Warnings come from various sources—aeroplanes and outposts, the whistling sound of the gas itself, which can be heard for 200 yards, smell, the appearance of a cloud of any color, and the loss of the taste of tobacco.

As there is short time allowed to don the mask when in action, drills to speed up its adjustment must be given.

GAS DRILL

There are three preliminary commands: 1. "Mask at carry." Here the satchel is swung over the left hip, with the sling passing over the right shoulder. 2. "Gas alert." The satchel is advanced to the front of the body, with both arms through the sling, and flap open. 3. "Gas" by numbers (adjustment of mask): 1. The right hand is thrust into the satchel and the mask seized firmly, the tube fitting into the palm of the hand, with the fingers grasping the eye-piece. 2. The mask is brought smartly from the satchel, with the fingers grasping the edge of the face-piece, and is brought close to the chin, which is thrust forward. 3. The mask is brought upward, the chin dug into it, and at the same time the elastic bands are placed over the back of the head. 4. The metal breathing tube is seized in the right hand, and the rubber mouth-piece is placed in the mouth. 5. The nose-clip is attached well down over the nostrils. (This is necessary to prevent nose-breathing, as all of the air taken into the lungs must come through the canister containing the antidotes.)

This drill is continued to a point of efficiency whereby it is possible to adjust the masks from "Masks at carry" to the finishing touch of fastening on the nose-clip, in six seconds.

For the purpose of this drill the innocent Docs are ruthlessly lined up, preparedly gassed by lectures, and then forced to don their masks. One look, and there is a mad rush for cameras, to perpetuate their first appearance in the gas masks. That night 300 letters go home, telling of the marvelous experiences and hair-breadth escapes from the gas clouds—shell gas and lecture gas.

As a lesson in anatomy, the gas drill is excellent, and many learn for the first time, while adjusting the nose-clip, the exact position of their noses. The masks also demonstrate that drooling is not exclusively an attribute of infancy, and that bibs may be used to advantage even by medical officers. The constant irritation to the mouth of the tight-fitting mouth-piece fastened to the end of the breathing tube causes an excessive flow of saliva, which escapes through a drip tube out on the chest. It is not an uncommon experience at the beginning of this work, and until one is accustomed to the mouth-piece, for the flow of saliva to be so great as to soak through the clothing.

The first sensation of uneasiness over, and the novelty past, all found to their surprise that the mask, although grotesque in appearance and somewhat clumsy, could be worn without discomfort, and that it permitted perfect freedom in breathing.

This course of instruction, patterned after the British organization, occupies a week, divided between lectures, drills and demonstrations with actual gases at the gas house. It is intended to cover the subject thoroughly and to show the method of protection against poison gases, describe and demonstrate the kind of gases used, and, in the Medical Corps, to give information regarding the symptoms and treatment of those unfortunate victims of this terrible phase of modern warfare.

News Notes from Fort Riley

Preparations for winter are now in progress. Barracks are being banked with earth or supplied with frame or stone underpinning. Stoves have been installed in all barracks and mess halls. Following the blizzards and cold snap of last week, we have had nearly a week of ideal Indian summer weather. Warm, mild sunshiny days and cool, pleasant nights make ideal weather for field maneuvers and bivouacs.

The remnants of Companies 5, 6, 7, 8 and 9 have been consolidated into one company and transferred to No. 6 barracks. This combination is known locally as the "scrambled eggs company," although its own members prefer the title of "Rainbow Company."

No. 7 Mess Hall has been converted into an officers' reading room and library. It is furnished with stoves, tables and chairs, and forms an ideal place for study, reading and letter writing. Medical journals, popular magazines and books are plentifully supplied. This room is generally patronized, and fills a long felt want in the camp.

On Thursday and Friday of last week, companies were taken in a practice march and bivouac to Hay Camp Springs, each man carrying his full equipment with the exception of his bedding roll. The boys supplemented the regulation field reserve ration with rabbit stew, thus furnishing a practical illustration of living on the country.

Field tactics in the morning and regimental maneuvers in the afternoon have given Companies 8 and 9 abundant practice in equitation, on some days giving an opportunity for six or seven hours a day on horseback. Each student officer, in turn, acts as a regimental surgeon, brigade and division surgeon, and is required to issue his orders and carry out his plans. Instruction and practice in locating regimental aid stations, ambulance dressing stations and field hospitals have been greatly enjoyed, the terrain of the Fort Riley reservation affording unusual opportunities for such work.

Major K. W. Kinnard, M. C., U. S. Army, has been ordered to the medical officers' training camp from Camp Sherman, Chillicothe, Ohio, to act as director of field hospitals.

Major George G. Davis, M. R. C., of Chicago, has been relieved as director of field hospitals and assigned to the command of Evacuation Hospital No. 1.

BIVOUAC PRACTICE

One of the things much looked forward to by those men who really enjoy outdoors is the practice march and bivouac. The company, each man equipped with his shelter half, rope and pins, haversack and canteen and carrying the standard reserve ration, is marched out to Hay Camp Springs, which is a delightful place for a bivouac. The pup tents are pitched on each side of the company street, and then the tents, as well as the officers' personal belongings, are carefully inspected by the officer in charge of the party. To accustom the officers to the use of the Lyster bag, no water is permitted to be used until it has been properly chlorinated in the bags, although the water at the springs is of the best. The reserve ration alone is permitted, and no extra food or delicacy of any kind may be taken. Each officer cooks for himself; and the bacon, crisply fried in the meat can, never tastes better than when on such an expedition. The bread comes in two packages, and is in the form of a cracker. Without butter these crackers would be unpalatable indeed; but after being dipped into hot water (heated in the cup going with the canteen) and then mixed thoroughly with the melted bacon fat, they form quite a savory dish. Coffee is made, and completes the menu. While bacon, hardtack and coffee with sugar but without milk may sound to the uninitiated an insufficient meal, it is far from being such. The caloric value is amply sufficient for a heavy man doing heavy work.

To make oneself comfortable in a pup tent requires, first, that one be thoroughly tired, and second, that one be not too badly coddled by the refinements of civilization. The average officer sleeps well, albeit, if the night is cold, it may be an effort to keep warm. Blessed is he whose tentmate does not snore; for with two men in a space as small as that encompassed by a shelter tent, the relation of one to the other is much like that of a pair of spoons in a case. For breakfast, more reserve ration, for luncheon ditto. Cleaning the dishes is not an extensive process, but one that would put the average housewife to her wit's end. Yet with some time and much rubbing, it can be done and done satisfactorily too.

The allowance of equipment taken on the wagons is 50 pounds, which includes absolutely everything. To make sure no one "hunches," the rolls are weighed.

Company 8 in its bivouac had a rabbit hunt. Forming a circle, they managed to scare up and kill some score or so of rabbits, which were promptly transformed into savory stew. The next day's march home finds each officer with a new idea as to just what a bivouac means and how it feels to be on the reserve ration.

NEWS OF THE CANTONMENTS

Twenty-Eighth Division, Camp Hancock, Augusta, Ga.

Representatives from the Surgeon-General's Office recently visited the camp to inquire into the shortage of equipment.

Major Dillinger recently returned from a short leave of absence. He is assistant division surgeon. He has been active in Pittsburgh politics, and was recently a candidate for councilman.

A course of intensive training for the medical officers was begun here, November 1. Among the lecturers are Lieutenant-Colonels Keller and Crookston, Majors Frescoln, Heffelbower, Crampton, Schaeffer, Dillinger, Swayne, Hogan and Schwartz, Captain Stone and Lieutenants Wood, Smith, Laws, Snyder, Seeley, Hollister and others. The course will include the modern advances in military surgery, trench sanitation, French and antigas warfare.

Thirty-First Division, Camp Wheeler, Macon, Ga.

BASE HOSPITAL NOTES

There are at present under treatment in the hospital 1,322 patients, although three wards are still incomplete. Three fourths of the patients have measles, and unless there is an abatement of the epidemic, it will be necessary to occupy the hospital tents pitched for use in case of need. Six tents, each with a capacity of twenty-five patients, are in place, and will be used for convalescent measles patients only should the emergency arise. Heretofore it has been possible to care for all patients under roofs, though all porches and the machine shop have been utilized to that end.

Notwithstanding the crowded condition of the wards, the patients are content, and there are few complaints. When these are made they are at once investigated thoroughly, and relief given as indicated.

The mortality rate speaks for itself, and shows conclusively that even under great difficulties sick and wounded men can be handled satisfactorily. As sequelae there have been nineteen cases of pneumonia, with two deaths.

It should be gratifying to the profession to know that practically every one, from the commanding officer to the lowest private, has risen to the occasion of this emergency; but it is no more than is to be expected. Conditions arise in war which must be overcome, and they are overcome.

The enlisted personnel has been increased by eighty men arriving from Camp Lee. It is believed that there are now enough.

The nurses' quarters are nearing completion, and will be ready for occupancy in a few days, as will the isolation and neuropsychiatric wards. It will probably be necessary to use the latter two for measles patients for the time being.

The mess officer and kitchen personnel are accomplishing the almost impossible task of feeding 1,700 people with a mess hall and equipment intended for 500.

PERSONAL

Captain Pratt has begun his course of instruction in gas defense, which is extremely interesting.

Major Harrold, M. C., acted as one of the judges in the athletic competition at the Georgia state fair.

The Georgia branch of the Daughters of the American Revolution intends to present an ambulance to the Thirty-First Division, for service in France.

Major Pearce Bailey, chief of the neurologic division of the medical service, visited that division last week.

Captain Mitchel, Sanitary Corps, is now on duty with the division as sanitary engineer.

ONE HUNDRED AND SIXTH SANITARY TRAIN

Recently a short problem was workeed out west of the Marion road, 2 miles north of the base hospital site. The tag-patients were detailed from the Florida and Alabama field hospital companies. Work of the regimental detachment was carried out by the hospital corps detachment of the One Hundred and Twenty-Second Infantry, commanded by Major Lindrome. The dressing station was established and the wounded evacuated to the ambulance company dressing station from the regimental collecting point by Ambulance Company No. 121, Capt. Robert F. Ashworth commanding. From the dressing station the wounded were evacuated by the motor ambulances to a theoretical field hospital established at Section 19. Considerable improvement was noted in development of coordinated effort over the problem of last week.

The ambulances of Ambulance Company 124 (mule-drawn) are in process of receiving their initial coat of olive-drab paint, showing in striking contrast to the familiar dark painted bodies.

Additional details of thirty-five men were made for special duty at the base hospital the past week in order to meet the increased demands of the heavy work incumbent on the base hospital. Though further depleting the enlisted personnel available for routine drill and instruction purpose within the train, it is evident that the training received in the actual care of the sick will be of great value in the future work of the train.

Major Cornelius F. Holton, commanding Field Hospital 123 (Georgia), by direction of the division surgeon has pitched the complete ward-tent equipment on the base hospital grounds for use should the emergency require.

Lieut. Daniel P. Campbell has returned from his short leave of absence a happy benedict. Mrs. Campbell has taken up her residence in Macon.

It is with deep regret that we note our first casualty in the train in the death of Private Aubrey Moore of Ambulance Company No. 123, a young man of sterling quality, with great promise of soldierly development. In attending the sick in one of our detailed detachments at the base hospital, he contracted lobar pneumonia. Even as on the field of battle, "he died in line of duty."

The sick rate of the sanitary train reflects credit on the officers and men of the train, being the lowest of any organization in the division.

Again the hopes of the train commander, Major Keenan of Massachusetts, have been raised in the anticipation of the carrying out of the promise of a dinner of "possum and 'taters." As reported two weeks ago, the prospective dinner was stolen from his cage. However, Friday morning a fine fat subject of the possum tribe arrived from some unknown source, and at the present writing we are sure, at least, that said possum is deceased and ready for the oven. Massachusetts still has hope of being convinced that this famous dinner combination is what is claimed for it.

The weekly social of the officers and ladies of the train, with their guests, was held as usual in the recreation hall. The Florida field hospital orchestra furnished the music for dancing. The usual buffet luncheon was served.

The completion of the framing of the tents for cool weather has insured more comfortable quarters. The acquisition of considerable more clothing now renders comparative comfort, especially at night.

Major Job C. Patterson, director of field hospitals, visited last Sunday at the neighboring settlement of Columbus. We have no definite information, but we suspect that a young man's thoughts may turn "lightly to love" even though spring is several months away.

Thirty-Fourth Division, Camp Cody, Deming, N. M.

Enlisted men of the division already present number about 23,000. During the past two weeks the number has been rapidly increasing. The camp is a collection of human beings of wonderfully good quality, and life in it induces a daily growing respect for the man power of America. These men, from our middle western plains, are a bulwark of defense on which the nation may confidently rely.

The spirit of the camp is excellent. It is well expressed in an address delivered by Brigadier-General Mauldin in command of the division on the occasion of the opening of the School for Medical Officers. He said:

> We face an enemy capable and determined, and the task before us will require the best that each man in our Army has in him. But the Army has already accomplished things that seemed impossible. In this war the Medical Department faces the greatest demand that has ever yet been made on the medical profession. The response has been good. Men have made great sacrifices in order to serve the nation, and these sacrifices are appreciated. Our medical officers are ready to work all the time with all their capacity. More than that is required. We must work together. Cooperation with each other and with the rest of the Army is essential if we are to meet the new and unconsidered duties by which we shall be confronted in the war, and win. But we know that each man will give his utmost effort to the United States, and that he will coordinate his efforts with those made by his fellows. We know that each man will be filled with the determination to win, and we shall win.

During the week ending October 22, 2,555 men were examined by each of the medical boards. Of these there were rejected on account of disease by the tuberculosis board (2,342 examined), 10; by the cardiovascular board, 9; by the ophthalmologists, 12; by the board examining the mentally defective, 5. The results of the work of the tuberculosis board are of interest in that they indicate the probable percentage of incidence of pulmonary tuberculosis among the supposedly healthy members of the communities in our north middle states. Cases discovered by this board are incipient. The advanced ones have already been thrown out by the physicians who examined the men on enlistment. This percentage has been 0.5 per cent., and it is probable that during the autumn months this percentage of individuals in any of these communities is developing active pulmonary tuberculosis. Special effort is made to detect these early cases. Organization commanders are requested to send for examination all men in their command who have cough and expectoration, or who show lassitude and inability to perform full duty. New cases are promptly discovered, and the probability of recovery of those thus early detected is great.

VENEREAL DISEASE

The number of cases of venereal disease contracted in or about the camp is gratifyingly small. Since the division came to Camp Cody, Aug. 25, 1917, only eleven new cases of gonorrhea and one case of chancroid have developed. When it is considered that the total number of men in the camp is over 22,000, this affords a gratifying evidence of the efficiency of the measures of prevention that have been instituted. This is a percentage of 0.0036 per month. Many of these patients had not taken the required prophylaxis. They thus come under the operation of G. O. 31, 1912. They are deprived of pay while off duty, and they will be tried by court martial for neglect of duty and failure to obey orders. In contrast with this small percentage of cases contracted here, it is very interesting to note that 440 cases were imported. The anxiety that has been expressed concerning the dangerous moral environment of our troops in camps would be better directed toward the home environment, since the number of cases contracted at home is to the number of cases contracted at camp as 38:1.

The treatment of these cases is a matter of great importance in the Army, since there depends on it the effectiveness of many U. S. soldiers. That which is required in this camp is stated in the following memorandum:

MEMORANDUM ALL SURGEONS, THIRTY-FOURTH DIVISION

The division surgeon desires that the following recommendations be followed as closely as equipment will permit in the treatment of venereal diseases at regimental infirmaries:

GONORRHEA

1. Patients must be instructed in personal cleanliness. They will be advised to wash their hands after each urination and will be cautioned against the danger of infection being carried to the eyes by unclean hands.

2. It is necessary in the thorough treatment of gonorrhea that the penis be cleansed before each injection, with a nonirritating soap and water. Frequently the foreskin is not retracted and the penis is not thoroughly cleansed. The practice of sealing the urethra by means of a small pledget of cotton, which is held in place by retracting the foreskin over the head of the penis, should be avoided. This tends to prevent drainage, and reinfection frequently takes place. The best method of protecting the clothing is to put a piece of clean cotton over the end of the penis to extend about one-third way back and which can be held in place by means of a rubber band.

3. After the above cleansing process, the patient will be advised to urinate before each injection. As gonorrhea is an acute infection of the mucosa of the urethra only, it is necessary that whatever treatment is carried out be nonirritating and one that will not increase the inflammation. When too strong injections are given, posterior urethritis is frequent, and injury to the mucosa occurs which results in chronic gonorrhea or gleet. It is advisable to begin with an injection that is not stronger than one fourth of 1 per cent. protargol. This can be increased, depending on the patients' tolerance and the amount of discharge. Injections should be given every two to six hours by the surgeon, or under his supervision. Care should be taken that the syringe does not traumatize the mucosa and thus open up new avenues of infection. The urethra should not be overdistended, but should be comfortably filled so that the patient has no difficulty in holding the drug at least ten minutes.

The surgeon must insist that all patients drink a large quantity of water, which can be made bland by the use of small doses of sodium bicarbonate. Hexamethylenamin and other urinary antiseptics are very useful, but must not be used in large enough doses to produce irritation of the sphincter and posterior urethra. The injection of large quantities of water causes the urethra to be continually flushed from within out, which is the desired effect. Erections at night should be avoided. Advise your patients to sleep with a little less than the usual amount of covering. It is not desirable that they be chilly or cold, but too much warmth frequently induces erections. When necessary, bromids or other nerve sedatives should be used to control erections.

4. Glass syringes are frequently broken when boiled. They can be disinfected and the gonococcus killed by immersion in a phenol (carbolic acid) solution. Care should be taken that they are thoroughly washed before being used.

5. Much better results can be obtained when using silver salts if the surgeon will have the solution freshly prepared.

6. Frequent examination of the urethral discharge is necessary. This can be accomplished by referring the patient to the base hospital with a note asking that a smear be made. The proper time to obtain such a specimen is before the morning urination.

7. Gleet or chronic gonorrhea is the result of infection into the submucosa of the urethra. It is necessary in this group of cases, after the gonococcus has disappeared, to sound the patient regularly. This will be done by the chief of the genito-urinary clinic at the base hospital, and such patients can be directed to see this officer at the Friday conference and at such other times as the officer may direct.

8. Chronic cases that do not respond to the usual treatment as carried out at the infirmary should be referred to the officer in charge of the genito-urinary clinic, base hospital, for diagnosis and suggestions relative to treatment.

9. Patients requiring endoscopic or cystoscopic examinations will be referred to the base hospital.

CHANCROID

1. All suspicious sores will be referred to the base hospital for diagnosis before treatment is begun. Dressings and medicines of all kinds should not be used before the officer in charge of the laboratory has had an opportunity to obtain some serum for dark field examination. Chancroid is best treated by soaking the penis in some mild antiseptic solution which should be comfortably hot. A saturated solution of argyrol, or the pure crystals of argyrol, applied to such a lesion will usually bring about quick recovery. The inguinal adenitis can usually be controlled by applications of blue ointment. Vaccines are of some use in very chronic cases. The surgeon must be on the lookout for a double infection, as frequently a lesion begins as a chancroid, and later a syphilitic infection develops. When suppuration of the inguinal glands occurs, patients should be immediately referred to the base hospital for treatment.

CHANCRE

1. As mentioned above, every suspicious sore should be examined by the officer in charge of the laboratory, base hospital, so that if syphilis is present, treatment can be started at once. It is necessary to have sterile distilled water for intravenous treatment. Patients requiring salvarsan or neosalvarsan or the intramuscular injection of mercury will be referred to the base hospital. These patients need not remain in the hospital, and can be returned to duty the same day. The Wassermann test is not positive in early syphilis, so that it should not be depended on for a diagnosis. The test should be used in every suspicious case except the early primary lesion. In these cases, as mentioned above, the serum examination for spirochetes is positive in every case of syphilis. A negative Wassermann test does not mean that syphilis is absent. It is necessary that the surgeon study the case together with the laboratory findings before making his diagnosis. Provocative medication is frequently necessary. Mercury can best be used by the inunction method. When this method is used, it is necessary that the surgeon personally supervise the rubbing so that he knows at all times the amount of mercury the patient is absorbing. A good plan to follow is that the men be required to sleep in their undershirts and that the mercury be rubbed into the torso. They should bathe but once a week, at which time the undershirts can be changed. Five treatments per week are sufficient. A course of treatment should take six hours, and consist of thirty rubs.

2. Cases that should be referred to the base hospital: acute epididymitis; posterior urethritis; prostatitis; seminal vesiculitis; suppurating buboes that require drainage; cases for intravenous medication; cases for Wassermann test; in addition, the above mentioned cases for diagnosis and special treatment.

A copy of this memorandum will be posted in a conspicuous place in the room in which venereal treatment is given.

By order of Lieutenant-Colonel.

Some other lines of sanitary work in progress are important. Food is being carefully inspected. All that comes into camp must conform to certain standards. Meat passes the local inspector of the BAI before delivery to the quartermaster, and between the quartermaster and the companies it must pass that of the camp inspector. Milk must measure up to the standards set by the BAI. It must not score less than 75 per cent., and dairies are inspected once in thirty days. Bacteriologic examinations of milk are made, and those dairies whose produce fails to be approved are denied permission to sell to the camp, nor are ice cream factories, bakeries, etc., using this milk permitted to sell to the camp. Canned goods are inspected before issued. Those cans that are leaky and those showing the presence of gas are rejected. The laboratory at the base hospital is now equipped to conduct these examinations for the camp.

The examination of all those concerned in the preparation or handling of food to discover carriers of typhoid or paratyphoid has resulted in the detection of one paratyphoid carrier, who was promptly relieved from duty in the kitchen.

Incoming troops are examined on the train for contagious disease. At the end of their long trips, those trains pull into our sidings, and our newcomers are given a welcome by the band; but before they come within hearing of the martial music, Major Kenney, M. C. N. G., and his staff are already inspecting them, and some unfortunates go from the train directly to the contagious wards of the base hospital. All the others must go to the detention camp of the depot brigade, where during two weeks they carry on in isolation the work of training, before they are admitted into full membership and good standing in our healthy community. Everywhere throughout the camp cases of contagious disease that appear are promptly removed to the hospital, and the contacts, that is, those living in the same tent or in immediate association with them, go to the contact camp out in the unmitigated desert, there to enjoy a noninterrupted view of the far away mountains during whatever leisure is permitted them by the system of intensive training which makes its presence felt even there. The contact camp was commanded by a line officer, there being about 300 men in it; but as this arrangement proved unsatisfactory it is now in charge of Ambulance Company No. 134, commanded by Lieut. F. H. Roost. The Medical Department has taken it over entirely.

Thirty-Fifth Division, Camp Doniphan, Fort Sill, Okla.

A quadrilateral, the monotony of its low and once whitewashed stone walls broken only by the regularly spaced chinks through which one time blazed the fire of the trooper's rifle—such is old Fort Sill.

WORK OF THE DIVISION SURGEON

The sanitary and medical care of the camp is in charge of Lieut.-Col. W. T. Davidson of the Regular Army, under whose efficient and experienced leadership the camp has fared exceptionally well so far. He is ably assisted in this work by Major Carl Philipps, M. R. C., sanitary inspector, and Capt. W. L. Gist, M. R. C., adjutant. One of the difficult problems that the division surgeon had to solve was represented in the water supply. Owing to an unprecedented inadequate rainfall, which has continued now for a period of almost eighteen months, the impounded waters of Medicine Lake, which supply the camp, had become exceedingly offensive from an overgrowth of algae. This condition has now been quite satisfactorily overcome by adequate methods of treatment, to which the present cold weather has given considerable assistance.

The immunization of the troops against typhoid, paratyphoid and smallpox has practically been completed. In addition to these preventive measures, all cooks and those who handle or prepare food are being subjected to special examination to determine their freedom from typhoid germs. So far no carriers have been found.

A special course of instruction in matters pertaining to camp hygiene and sanitation, as well as the special features in the examination of recruits, has been arranged for and is well attended and appreciated. Special examining boards for tuberculosis, cardiovascular, and nervous and mental diseases are also active in weeding out the unfit.

The venereal disease problem also, here as elsewhere, forms one of the important considerations. Since October 1 there have been 322 venereal disease patients under treatment in this division; this makes approximately 1.3 per cent., a figure not excessive when compared with civil life statistics, especially when one considers that under the draft many men already infected are brought into camp.

The general disease incidence for the camp has been low thus far, reaching not quite 2 per cent. Contagious diseases have been relatively infrequent. Since the establishing of the camp in August there have been all told but two cases of cerebrospinal meningitis, nine of diphtheria and fourteen of pneumonia in the division. A case of anthrax with recovery may be mentioned among the more unusual infections that have come under observation. An outbreak of measles in one of the companies was promptly controlled by rigid isolation, and no new cases have been noted.

It is the opinion generally here among medical men that the absence of alcohol has added greatly to the efficiency of the men and to a lessened morbidity.

BASE HOSPITAL NOTES

Pending completion of the base hospital, the sick are being taken care of at the post hospital of Fort Sill. The opening of a number of wards of the new base hospital has made the care of the patients less difficult, however. When all of the buildings are completed there will be hospital accommodations for more than 1,200 patients, a little more than 3 per cent. of the total command. Past experience of the Army Medical Department has shown that this is about the average of sick in large commands.

Major P. B. Connolly of the Regular Army is in command at the base hospital, and the chief branches of the service under him are in the hands of the following Medical Reserve Corps officers: Major A. W. Barksdale, surgery; Major S. Strauss, medicine; Major A. C. Magruder, eye, ear, nose and throat, and Major G. C. Ruhland, laboratories.

Eighty-Third Division, Camp Sherman, Chillicothe, Ohio

Camp Sherman is situated on a broad plain of alluvial deposit on the west bank of the Scioto River. It is 2 miles north-northwest of Chillicothe, which is 50 miles south of Columbus and 98 miles northeast of Cincinnati.

The cantonment is rectangular, half a mile wide and about 2 miles long, and lies in a bend of the river, which for 15 or 20 miles follows a serpentine course. It is in one of these curves that the camp is placed. The barracks and officers' quarters are completed, and most of them are heated.

DISEASE INCIDENCE

There have been about forty cases of pneumonia, but no epidemic. In the second increment of the draft a patient with acute tonsillitis arrived, and before isolation was effective there were thirteen cases; the next day there were eighteen cases and on the third day eleven cases; from then on the epidemic subsided to nine cases, then three, and after the sixth day no other cases appeared. The rapid development of these cases and the prompt subsidence of the epidemic prove the infectious nature of the process and warrant immediate and vigorous action when such cases appear in groups of men. There were eight cases of Vincent's angina, but they yielded promptly to local treatment. One case of epidemic meningitis showed the immediate effects of the injection of Flexner's serum, 400 c.c. of which were injected, partly by the intravenous and partly by the intraspinal route. All contacts were isolated and throat cultures were negative. In the city of Chillicothe there have been sixteen cases of smallpox, but none in the camp. Every draft or enlisted man before his physical examination is completed is vaccinated. The inoculations against typhoid and paratyphoid A and B have been followed by the usual reactions, but there were none of unusual severity.

PERSONAL

First Lieutenant Brainard from the Infantry School of Arms, Fort Sill, Okla., is in charge of the instruction in methods of gas defense and the treatment of gas casualties.

The Ross County Academy of Medicine, October 10, gave a delightful entertainment for the medical officers of the camp. It was well attended, and the president, Dr. F. T. Marr, made a cordial address of welcome which was responded to by Lieut.-Col. Wallace De Witt, the division surgeon. The county societies and the local medical societies as well as the druggists have arranged a plan of cooperation for the improvement of the sanitary conditions of the city and county which should prove of the greatest value and yield excellent results.

The campaign for the Second Liberty Loan obtained the total subscription of over $2,000,000 from the division.

The medical and sanitary problems are in the care of the division surgeon, Lieut.-Col. Wallace De Witt, M. C., U. S. Army, who has been four years at Fort Ethan Allen, Vt., and for two summers in charge of the training camps at Plattsburg, N. Y. Major John A. Burket, M. C., is in charge of the sanitation. Capt. Robert H. Halsey, M. R. C., is assistant division surgeon.

The base hospital, with a capacity of 1,000 beds, is under the command of Major Edward G. Huber, M. C. Major Christian R. Holmes of Cincinnati is chief of the otolaryngologic service. Major Casey A. Wood, M. R. C., of Chicago is chief of the ophthalmologic section. Major James A. Harvey, M. R. C., is chief of the surgical service. Major Dudley DeV. Roberts, M. R. C., is chief of the medical service. Captain Stanley M. Rinehart, M. R. C., is special examiner in tuberculosis. Capts. Henry L. Stick, M. R. C., Elmore E. Adel, M. R. C., and Charles W. Hoyt, M. R. C., are among those doing special work.

First Lieut. Benjamin H. Sherrard, Dental Corps, is directing the work of the dentists, of whom there are about forty-five in the cantonment.

The sanitary train is under the direction of Major Henry S. Satterlee, M. R. C. Major John R. McDowell, M. R. C., commands the ambulance companies. The field hospitals are well organized and almost completely equipped.

That the general health of the camp is excellent is shown by the noneffective rate, which is 14 per thousand.

Eighty-Sixth Division, Camp Custer, Battle Creek, Mich.

Preparations are being made through all regimental sanitary detachments to systematize the work of examining the remaining draft increment that is due to arrive almost any day. This will represent 55 per cent. of the original draft. With the experience gained through the examinations of those already here, there is no doubt that the large number expected will be run through with rapidity and precision. It is expected that there will be fewer discharges on account of physical disability than among the first examined, owing to the fact that the examining boards in the draft districts will be more thoroughly trained through the experience they have already had. The division surgeon has outlined plans which, when carried out, should make it possible for every medical officer to gain some experience in this form of examination and some practical knowledge of the paper work necessary in making out reports for acceptance and for discharge. Changes which are contemplated following an outlined course of instructions as suggested by Colonel Munson, U. S. M. C., will cause a general mix-up of all medical officers for the purpose of instructing them in the necessary detailed work of every medical organization in the division. Field hospital and ambulance company officers and enlisted men will be changed to regimental detachments, regimental detachment officers and enlisted men to field hospitals and ambulance companies, thus making it possible for every medical officer to become familiar with the work of the various organizations, making for greater efficiency in every department. Courses of lectures by line officers and experts in military hygiene, sanitation and the various medical and surgical specialties will be given and must be attended by all medical officers. This is not done with the view of making specialists of medical officers, yet it is very necessary that the medical personnel be thoroughly trained in all branches represented by these courses of instruction.

The Calhoun Medical Society of Battle Creek met Tuesday evening, November 6. Major Roy Bishop Canfield read a paper entitled "Consideration of Some Types of Sepsis and Their Results." Major Ernest Edward Irons read a paper entitled "Chronic Muscular and Articular Rheumatism: Treatment as Based on Etiology." These papers were discussed both by the civilian physicians and the members of the Medical Department, who were present in large numbers.

SANITARY TRAIN

The weather conditions have improved so that outdoor work has been progressing rapidly. Long hikes with maneuvers are daily occurrences. The men relish the change, as lecture work and indoor drills were becoming very tiresome.

Ambulance Company No. 340 gave a large banquet to the officers of the company Tuesday evening, November 6. Invited guests were Major E. C. Jackson, director of ambulance companies; Major Lewis Wine Bremerman, director of field hospitals, and Capt. C. J. MacGuire of Ambulance Company No. 337. Home talent was utilized, and a very enjoyable evening was the result.

Athletes are numerous in the sanitary train. The ambulance companies have developed an extraordinarily fine football team. They have been coached by Capt. H. H. Varner, commanding Ambulance Company No. 340, late coach of the University of Virginia. The team has been unbeaten this season, and has challenged any football team from any sanitary train in training at the present time.

BASE HOSPITAL

The base hospital is nearing completion, and in a short time will be in a position to carry out all its work in a normal manner. Major Wood, commanding, is to be congratulated on the manner of conducting the work there to date, handicapped as he has been by cramped quarters, inclement weather, incomplete heating arrangements, and other difficulties. All patients have been given fine care, and there has been no complaint from any quarter.

Eighty-Ninth Division, Camp Funston, Fort Riley, Kan.

This camp was originally planned for one infantry division and one depot brigade. Now, however, there are really three divisions: the eighty-ninth, white; the ninety-second, colored, and the depot brigade, while the division surgeon's office, therefore, is practically handling the work of an army corps. Nevertheless, the work of examining the men of the National Army has been done quickly and smoothly. It has been so systematized that one examining board has frequently examined over a thousand men in a day, including the administering of smallpox vaccine and the initial dose of the typhoid and paratyphoid prophylaxis.

A training officer, Medical Department, has been appointed for the Eighty-Ninth Division, and a schedule of instruction for the officers and men of the Medical Department has been instituted. Special subjects pertaining to work of the line are given in nightly lyceum lectures, by special officers of the departments concerned. The medical subjects necessary for the instruction of the enlisted personnel are taught by medical officers of the various organizations to which these men belong.

Col. Frank W. Weed, M. C., is sanitary inspector of the Eighty-Ninth Division. Major J. M. White, M. R. C., of St. Paul, is sanitary inspector of the Ninety-Second Division. Capt. R. B. Irones, M. R. C., of San Diego, Calif., is instructor in gas defense for the Eighty-Ninth Division.

The base hospital of Camp Funston is located at Fort Riley, 4 miles away. Patients, and clothing to be fumigated, are taken there and returned by ambulances over the new government macadamized road. A simple system of paper work has been instituted for these transfers, and no confusion results. At present, out of the whole command, there are approximately 30 cases of measles, 25 cases of cerebrospinal meningitis, 35 of mumps, 2 of scarlet fever and 50 of lobar pneumonia. No serious accidents have occurred, the worst being the loss of three fingers by a private who was fashioning a wooden rifle with an ax.

VENEREAL DISEASE

In civil life we have all heard of the great frequency of venereal diseases among soldiers of the Regular Army. In view of this teaching, it may be of interest to note our experiences in the examination of the National Army men just out of civil life on their arrival in camp. For the white troops the incidence of all venereal diseases has ranged between 5 and 6 per cent.; for the colored troops, over 20 per cent. These are all cases contracted prior to enlistment. At the time of present writing, no case has been reported that has been contracted since entering the military service in the Eighty-Ninth Division, which should furnish food for thought.

TYPHOID VACCINATION

A number of officers and men had received their typhoid prophylaxis prior to the order which made paratyphoid vaccination likewise compulsory. These men have subsequently had to take the three doses of paratyphoid A and B vaccine, whereas the men of the National Army have received only the three doses of U. S. triple vaccine, which consists of the paratyphoid and typhoid vaccines combined. It has been an experience common to the medical men of the camp that the reaction from the inoculation of paratyphoid vaccine, alone, has been much more severe than that of the triple vaccine or of the typhoid vaccine, alone. So far, no explanation has been attempted.

"SOB LETTERS"

An unpleasant phase of a medical officer's life is the "sob letters." Dozens of these, in tenor all alike, came through here every week. Anxious mothers, overzealous wives, and even mere acquaintances flood us with affidavits and letters about the physical condition of some of the men brought here by the draft. Some of these letters are extremely sad, others are absurdly funny, but all alike are given full consideration, which means a reexamination of the person referred to, by the already overworked surgeon. These letters rarely amount to anything, as the men unfit for service have already been weeded out as nearly as is humanly possible by the surgeons of the organizations to which they are attached, or by the Camp Board of Special Examiners.

PERSONAL

Capt. Bruce Ffoulkes, M. R. C., has been made director of field hospital companies, and Lieut. John D. Bartlett, M. R. C., has been made director of ambulance companies, of the Three Hundred and Fourteenth Sanitary Train, Eighty-Ninth Division. Lieut.-Col. Harry L. Boyer, M. C., has been appointed division surgeon of the Ninety-Second Division, and Captain Nicholls, M. R. C., formerly of the Presbyterian Hospital in Chicago, has been made his assistant. Lieut. Louis G. Harney, M. R. C., of wide industrial medical experience with the American Steel Foundries of East St. Louis, is assistant to the division surgeon of the Eighty-Ninth Division. Lieut. Judd H. Kirkham, M. R. C., of Langdon, N. D., is attending surgeon of the headquarters, Eighty-Ninth Division. Lieut. Albert G. Bower, M. R. C., formerly of the Department of Bacteriology, University of Chicago, is medical training officer of the Eighty-Ninth Division.

DISEASE CONDITIONS AMONG TROOPS IN THE UNITED STATES

Extracts from Telegraphic Reports Received in the Office of the Surgeon-General for the Week Ending Nov. 2, 1917

1. Total strength of troops		1,001,632
Admission rate per 1,000 (disease only)	annual	955.2
Non-effective rate (all causes)		25.6
2. National Guard, strength		373,180
Admission rate per 1,000 all camps (disease only)	annual	1,108.8
Non-effective rate all camps (all causes)		24.5

Camps showing admission rate for disease higher than average: Camps Kearney, Wheeler, Cody, Bowie, Sevier, Beauregard and Shelby.

Camps showing noneffective rate higher than average: Camps Wheeler, Bowie, Logan, MacArthur, Shelby, Beauregard, Sevier, Cody, Hancock and Kearney.

3. National Army, strength		426,578
Admission rate per 1,000 all camps (disease only) annual		929.8
Non-effective rate all camps (all causes)		20.1

Camps showing admission rate for disease higher than average: Camps Pike, Jackson, Dix, Dodge, Travis, Funston, Gordon and Lewis.

Camps showing noneffective rate all causes higher than average: Camps Pike, Dodge, Funston, Lewis and Dix.

4. Venereal Disease—

Admission rate Regulars		90.4
Admission rate National Guard (camps)		93.6
Admission rate National Army		135.6

Camps National Guard having rate above average: Camps Sheridan, Wheeler, Kearney, Logan, Sevier, MacArthur and Bowie.

Camps National Army having rate above average: Jackson, Pike, Custer, Dix, Lee, Travis and Meade.

5. Number of cases of pneumonia		228
Highest number in any one camp	Funston	22
Number of cases of meningitis		18
Highest number in any one camp	Funston	9

	Regulars, U. S. Army, in U. S. only, 1916		Regulars in U. S. week ending Nov. 2, 1917		Nat'l Guard, All Camps, week ending Nov. 2, 1917		Nat'l Army, All Camps, week ending Nov. 2, 1917	
	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Admissions, diseases only, annual rate per 1000	....	613	....	831.8	....	1108.8	....	929.8
Pneumonia	....	2.59	24	17.2	92	14.0	78	9.7
Dysentery	....	3.97	5	1.2	2	0.3	2	0.2
Malaria	....	12.52	7	1.8	49	7.4	43	5.3
Venereal	....	91.06	251	90.4	615	93.6	1085	135.6
Paratyphoid	....	0.31	....	0	....	0	1	0.1
Typhoid	....	0.21	....	0	2	0.3	5	0.6
Measles	....	20.29	145	37.3	990	150.8	786	98.2
Meningitis	....	0.29	3	0.7	3	0.4	22	2.7
Scarlet fever	....	0.59	17	4.3	15	2.8	6	0.7

6. SPECIAL DISEASES REPORTED DURING THE WEEK ENDING NOV. 2, 1917

Division	Pneumonia	Dysentery	Malaria	Venereal	Paratyphoid	Typhoid	Measles	Meningitis	Scarlet Fever	Strength of Command
27th, Wadsworth	...	...	1	46	...	...	....	1	...	30,014
28th, Hancock	1	...	...	39	...	...	....	...	...	28,669
29th, McClellan	3	...	...	31	...	...	18	1	...	25,390
30th, Sevier	19	...	2	46	...	...	258	1	...	23,058
31st, Wheeler	15	1	12	62	...	...	248	...	...	21,102
32d, MacArthur	...	...	...	51	...	1	16	...	...	26,016
33d, Logan	5	...	23	57	...	...	3	...	...	23,267
34th, Cody	2	...	...	42	...	...	70	...	9	25,150
35th, Doniphan	4	...	2	20	...	...	13	...	1	25,512
36th, Bowie	11	...	3	47	...	1	244	...	...	24,514
37th, Sheridan	...	...	...	73	...	...	16	...	...	24,171
38th, Shelby	20	1	4	36	...	...	50	...	...	22,368
39th, Beauregard	3	...	2	4	...	...	24	...	...	6,471
40th, Kearney	8	...	...	15	...	...	21	...	...	18,333
41st, A. L. Mills	1	...	...	45	...	...	9	...	...	10,690
76th, Devens	3	...	...	38	...	...	1	...	...	30,073
77th, Upton	1	...	...	19	...	...	1	...	...	27,762
78th, Dix	...	1	...	102	...	5	....	...	...	19,877
79th, Meade	...	...	...	8	...	...	....	...	...	24,802
80th, Lee	3	...	1	182	...	...	....	2	...	34,824
81st, Jackson	3	...	3	191	...	...	141	...	...	17,130
82d, Gordon	...	...	...	45	...	...	31	2	...	20,065
83d, Sherman	4	...	1	41	...	...	....	...	...	33,757
84th, Taylor	7	...	1	4	...	...	48	1	...	26,489
85th, Custer	...	...	...	10	...	...	11	3	3	15,898
86th, Grant	2	...	...	13	...	...	....	2	...	27,764
87th, Pike	13	1	11	177	...	...	529	2	...	21,234
88th, Dodge	6	...	...	53	...	...	4	...	1	20,388
89th, Funston	22	...	2	37	...	...	17	9	2	31,992
90th, Travis	10	...	24	96	1	...	....	...	...	28,665
91st, Lewis	4	...	...	68	...	...	3	1	...	35,038

7. Deaths by causes—

Pneumonia, lobar	22
Cerebrospinal meningitis	9
Pulmonary tuberculosis	2
Diabetes mellitus	1
Acute colitis	1
Endocarditis	1
Appendicitis	1
Measles	1
Cerebral abscess	1
Rupture right ventricle	1
Dementia praecox	1
Suicide	5
Traumatism	4
Traumatism by firearms	2
Traumatism by railroad	2
Traumatism by automobile	1
Wood alcohol poisoning	1

ORDERS TO OFFICERS OF THE MEDICAL CORPS

To report to Board for examination for promotion: Col. HENRY D. SNYDER, Washington, D. C.; Majors WILLIAM K. BARTLETT, Takoma Park, D. C.; WILLIAM A. DUNCAN, Washington, D. C.; and PAUL L. FREEMAN, Fort Myer, Va.

Major HERBERT C. GIBNER, now on duty in the Hawaiian Department *to report to board* convened by the commanding general, Hawaiian Department, *for examination for promotion.*

Col. ALBERT E. TRUBY, now on duty in the Panama Canal Department, *to report to board* convened by commanding general, Panama Department, *for examination for promotion.*

To report to board convened by commanding general, American Expeditionary Force, France, *for promotion,* Col. JAMES R. CHURCH; Lieut.-Cols. CHARLES L. FOSTER, JAMES D. HEYSINGER and JOSEPH F. SILER; Majors LUCIUS L. HOPWOOD, HENRY J. NICHOLS, OMAR W. PINKSTON, GUY V. RUKKE, ROBERT M. CULLER, CLEMENS W. McMILLAN, ARTHUR N. TASKER, and H. VAN KIRK.

To report to board convened by commanding general, Western Department, *for promotion,* Col. ELMER A. DEAN, San Francisco, Calif.; Lieut.-Col. WILLIAM H. TEFFT, Fort Douglas, Utah; and Major WILLIAM R. DAVIS, Fort Rosecrans, Calif.

To report to board convened by commanding general, Central Department, *for promotion,* Cols. PERCY M. ASHBURN, Fort Benjamin Harrison, Ind., and HENRY S. GREENLEAF, Fort Snelling, Minn.; Lieut.-Cols. HENRY F. PIPES, and GIDEON McD. VAN POOLE, Fort Benjamin Harrison; Majors HENRY C. PILLSBURY and FRANK W. WEED, Fort Riley, Kan., HOWARD H. BAILY, Camp Grant, Rockford Ill., WILLIAM A. WICKLING, St. Louis, Mo., and WILLIAM S. SHIELDS, Chicago, Ill.

To report to board convened by commanding general Eastern Department, *for promotion,* Col. FRANCIS M. C. USHER, Fort Slocum, N. Y.; Lieut.-Cols. ORVILLE G. BROWN, Camp Mills, Garden City, L. I., N. Y., JOHN R. BOSLEY, Fort Ontario, N. Y., SAMUEL M. DeLOFFRE, Plattsburg Barracks, N. Y., GEORGE F. JUENEMANN, Gettysburg, Pa., and HENRY D. THOMASON, Fort Ontario, N. Y.; Majors LOUIS H. HANSON, Syracuse, N. Y.; HARRY G. HUMPHREYS, Fort Hancock, N. J.; FREDERICK S. MACY, Fort Jay, N. Y., FERDINAND SCHMITTER, Camp Lee, Petersburg, Va.; WILLIAM C. DAVIS, Camp Dix, Wrightstown, N. J., CHARLES L. GANDY, Allentown, Pa., PAUL W. GIBSON, N. Y. C., EDGAR C. JONES, Newport News, Va., and WILLIAM W. VAUGHAN, Allentown, Pa.

To report to board convened by commanding general, Southern Department, *for promotion,* Lieut.-Cols. WILLIAM P. BANTA, Nogales, Ariz., ROBERT L. CARSWELL, Fort Sam Houston, Tex., and ROBERT C. LOVING, San Antonio, Tex.; Majors CLARENCE L. COLE, Fort Sam Houston, Tex., and EIDE F. THODE, Fort Clark, Tex.

To report to board convened by commanding general, Southeastern Department *for promotion:* Lieut.-Cols. CRAIG R. SNYDER, Camp McClellan, Anniston, Ala., and ARTHUR M. WHALEY, Camp Sevier, Greenville, S. C.; Majors CHARLES E. FREEMAN, Camp Pike, Little Rock, Ark., and LEARTUS J. OWEN, Camp Greenleaf, Fort Oglethorpe, Ga.; Lieut.-Col. LOUIS C. DUNCAN, Fort McPherson, Ga., Majors CHARLES W. HAVERKAMPF, Fort Oglethorpe, Ga., and EDWARDS C. REGISTER, Hot Springs, Ark.

To report to board of commanding general, Northeastern Department, *for promotion,* from Camp Devens, Ayer, Mass., Northeastern Department, Major GLENN I. JONES.

Colonel WILLIAM OWEN, to attend meeting of Southern Medical Association, Memphis, Tennessee, Nov. 12 to 16, 1917.

Colonel WILLIAM F. LEWIS, now on duty at San Antonio, Texas, to proceed to the following named places, for the purpose of making special sanitary inspections, and on completion of duty, to return to station: *Waco, Texas,* The Aviation Camp and Camp McArthur; *Fort Worth, Texas,* The Aviation Camp and Camp Bowie; *Dallas, Texas,* The Aviation Camp; *Wichita Falls, Texas,* The Aviation Camp; *Fort Sill, Okla.,* The Aviation Camp and Camp Doniphan; *Houston, Texas,* the Aviation Camp and Camp Logan.

Colonel EDWARD L. MUNSON, *to Roanoke, Va.,* to address Medical Society of Virginia on recruiting and training of medical officers.

Lieut.-Col. CHARLES F. MORSE, relieved from duty at Fort Benjamin Harrison, Ind., and *to proceed to Washington, D. C.,* and report to the Surgeon-General of the Army for duty in his office.

Major EDGAR KING *to Goshen, Va.,* to inspect property under consideration to be used as a general hospital, and on completion of duty to return to station.

Colonel ALLEN M. SMITH, now on duty at Fort Logan, Colo., *to Grand Junction, Colo.,* to report on the suitability and availability of the former United States Teller Institute for use as a general hospital, and on completion of duty to return to station.

Major GLENN I. JONES, *now on duty at* Camp Devens, Ayer, Mass., *to Washington, D. C.,* and report in person to the Surgeon-General for conference, and on the completion of duty, to return to station.

Major THOMAS D. WOODSON, to the following-named places to determine their suitability for general hospital purposes and inspecting sites for other general hospital purposes: *Stockbridge, Mass.; Worcester, Mass.; Boston, Mass.,* and on completion of the duty at Boston, Mass., to proceed to the following-named places for the purpose of inspecting sites offered for general hospital purposes, and upon completion of this duty to return to his proper station: *Willets Point,* New York; *Camp Mills,* Garden City, L. I., N. Y.; *Iselin,* New Jersey.

Lieut.-Col. WILLIAM H. MONCRIEF, *to New York City*, for temporary duty at the Rockefeller Institute and on completion of duty to return to station.

Major ROBERT H. DUENNER, to be relieved from duty in the Hawaiian Dept. and directed *to proceed to the United States*, and on arrival *to Fort Riley, Kan.*, to organize and command Hospital Train No. 25.

Major STEPHEN H. SMITH, relieved from duty at Schofield Barracks, Hawaii, and *to Fort Oglethorpe, Ga.*, to organize and command Hospital Train No. 23.

Lieut.-Col. WILLIAM C. BORDEN, U. S. Army, Retired, *to Rockefeller Institute* for a course of instruction, and on completion of duty to return to station, Walter Reed General Hospital, Takoma Park, D. C.

Major SAMUEL J. TURNBULL relieved at Fort Benjamin Harrison, Ind., and *to Fort Riley, Kan.*, and report in person to the commandant, to organize and command Hospital Train No. 24.

Lieut.-Col. THEODORE LAMSON, relieved from duty with Field Hospital No. 3, Fort Oglethorpe, Ga., and *to commandant Camp Greenleaf*, for temporary duty.

Major WILLIAM B. MEISTER relieved from duty at the Presidio of San Francisco, Calif., and *to Fort Oglethorpe, Ga.*, to organize and command Hospital Train No. 28.

Major THOMAS L. FERANBAUGH relieved from duty at Laredo, Texas, and *to Fort Worth, Texas*, Camp Bowie, to command base hospital.

Major GEORGE E. PARISEAU, relieved from duty as commanding officer of the base hospital at Camp Bowie, and *to Fort Oglethorpe*, for duty with Field Hospital No. 3.

Colonel IRVING W. RAND, relieved from duty at the Philippine Dept., Tientsin, China, and *to San Francisco, Calif.*, and report in person to the commanding general, Western Department, for duty.

Colonel HENRY A. SHAW, *to Petersburg, Va.*, Camp Lee, for duty in connection with psychologic examinations, and on completion of duty to return to station.

Major ROBERT M. HARDAWAY, relieved at Fort Bliss, and *to Fort Oglethorpe, Ga.*, to organize and command Hospital Train No. 22.

Major WILLIAM R. DEAR, relieved from Philippine Department and *to Fort Oglethorpe, Ga.*, to organize and command Hospital Train No. 27.

Major WILLIAM D. HERBERT, relieved from Philippine Dept. and *to Fort Oglethorpe, Ga.*, to organize and command Hospital Train No. 26.

Lieut.-Col. CHARLES F. MORSE, now at the medical officers' training camp, Fort Benjamin Harrison, Ind., under orders to report to the Surgeon-General's office, to proceed to the following-named camps for the purpose of inspecting the base hospital thereat, and on completion of this duty to comply with previous orders directing him to proceed to Washington, D. C., *Camp Sherman*, Chillicothe, Ohio; *Camp Custer*, Battle Creek, Mich.

Lieut. FRANK L. COLE, relieved from Allentown, Pa., and *to Army Medical School*, for instruction in orthopedic surgery.

ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

Alabama

To Camp Greenleaf, Fort Oglethorpe, for a course of instruction, Lieut. LEROY H. WOODRUFF, Anniston.

To Camp Kelly, San Antonio, Texas, for duty, from Fort Oglethorpe, Lieut. ROSCOE C. STEWART, Wylam.

To Camp Lee, Petersburg, Va., for duty, from Army Medical School, Lieut. HARRY P. SHURGERMAN, Birmingham.

To Camp Logan, Houston, Texas, for temporary duty in the base hospital, from Fort Oglethorpe, Lieut. JAMES D. PERDUE, Furman.

To Fort Oglethorpe, for a course of instruction, Lieut. MILES A. WATKINS, Birmingham.

To Newport News, Va., Port of Embarkation, for duty, Capt. MACK ROGERS, Birmingham.

To Philadelphia, University Hospital, for a course of instruction on fractures, and on completion of this course to proceed to Camp McClellan, Anniston, Ala., for temporary duty in the base hospital, Lieut. WILLIAM W. BURNS, Selma.

To his home and to the inactive list of the Medical Reserve Corps on account of being physically disqualified for active service, Lieut. JACOB D. STAPLES, Camp Hugh.

Arizona

To New York City, for orthopedic instruction, Capt. CHARLES T. STURGEON, Globe.

Arkansas

To Army Medical School, Washington, D. C., for a course of instruction, Lieut. JOHN F. LIEBERMAN, Pine Bluff.

To Camp Devens, Ayer, Mass., for duty, from Army Medical School, Capt. HARRY H. TOWLER, Fayetteville.

To Camp Greenleaf, Fort Oglethorpe, for a course of instruction, from School of Plastic and Oral Surgery, Washington University, St. Louis, Lieut. SIDNEY J. WOLFERMANN, Fort Smith.

To Camp Greenleaf, Fort Oglethorpe, for a course of instruction, Lieut. MARTIN V. B. WADDLE, Success.

To Camp Kelly, San Antonio, Texas, for duty, from Fort Oglethorpe, Lieut. FLOYD CLARDY, Jonesboro.

To Camp Sherman, Chillicothe, Ohio, for duty, from Army Medical School, Lieut. JAMES V. FALISI, Little Rock.

To Fort Riley, Kan., for duty with Hospital Train No. 24, Lieut. GEORGE W. EUBANKS, Wabash.

To St. Louis, Washington University, for a course of intensive training in head surgery, from Fort Riley, Lieut. JAMES W. BUTTE, Helena.

Recommending that his resignation from the Medical Reserve Corps be accepted for the good of the service, from Camp Pike, Lieut. SEABORN J. FULLER, Little Rock.

California

To Army Medical School, Washington, D. C., for a course of instruction, Lieuts. FRANK H. CHASE, Linda Vista; Charles C. Dickinson, McCloud.

To Camp Cody, Deming, N. M., for duty from Fort Riley, Kan., Lieut. HERBERT R. STOLZ, Stanford University.

To Camp Kearny, Linda Vista, California, for duty, from Camp Kearny, on the tuberculosis examining board as Contract Surgeon, Lieut. JOHN E. FAHY, Los Angeles.

To Camp Kelly, San Antonio, Texas, for duty, from Fort Oglethorpe, Lieut. MALCOLM Y. MARSHALL, Bakersfield.

To Canal Zone, to report in person to the commanding general, Panama Department, for duty, from Fort Benjamin Harrison, Ind., Lieut. FRANK H. CHASE, Los Angeles.

To Chicago, Neurological School, Presbyterian Hospital, for intensive training in brain surgery, from Orthopedic School, Boston, Capt. REXWALD BROWN, Santa Barbara.

To Fort McDowell, Calif., for duty, Lieuts. HIRAM E. MILLER, San Francisco; ELMO R. ZUMWALT, San Francisco.

To Fort Oglethorpe, Ga., for a course of instruction, Lieut. CARL W. ROBBINS, San Diego.

To Newport News, Va., Camp Stuart, for duty, from Fort Benjamin Harrison, Lieut. SMITH S. JOHNSON, San Francisco.

To report by wire to the commanding general, Western Department, for assignment to duty, Capt. ARTHUR J. WILKINSON, San Diego.

To report by wire to the commanding general, Western Department, for assignment to duty, Lieut. WALTER I. SUNBURNT, Sacramento.

To San Francisco, and report in person to the commanding general, Western Department, for duty, Lieut. CLARENCE L. BITTNER, Sacramento.

To the inactive list of the Medical Reserve Corps on account of being physically disqualified for active service, from Neurological School, Chicago, Capt. REXWALD BROWN, Santa Barbara.

Canal Zone

To Mineola, L. I., N. Y., for duty at the Concentration Camp and Supply Depot, Field No. 2, from Hazelhurst Field, Capt. EDWARD P. BEVERLEY, Balboa.

To Washington, D. C., and report in person to the Surgeon-General of the Army for temporary duty in his office, from Panama, C. Z., Lieuts. ARTHUR M. ALDEN, Culebra; GEORGE C. DUNHAM, Empire; from Fort Grant, C. Z., CLARENCE P. BAXTER, Fort Grant.

Colorado

To Camp Doniphan, Fort Sill, Okla., Thirty-Fifth Division, for duty, Lieut. ELWYN R. CLARKE, Fort Morgan.

To Camp Kearny, Linda Vista, Calif., for duty at the remount depot, from Fort Riley, Kan., Capt. ALBERT W. METCALF, Jr., Henderson.

To Camp Travis, Fort Sam Houston, Texas, for duty as a member of a board of medical officers for the special examination of a command for tuberculosis, Lieuts. BENJAMIN W. CARLSON, Denver.

To St. Louis, Washington University, for a course of intensive training in head surgery, from Fort Riley, Lieut. FRED H. CARPENTER, Denver.

His resignation to be accepted on account of being physically disqualified for active service, Lieut. THOMAS J. WEST, Denver.

Connecticut

To Army Medical School, Washington, D. C., for a course of instruction, Lieut. CORNELIUS S. CONKLIN, Ansonio.

To Camp Devens, Ayer, Mass., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, Lieut. LEONARD J. LOEWE, Higganum.

To Camp Greenleaf, Fort Oglethorpe, for a course of instruction, Lieuts. ALEXANDER B. TIMM, New Haven; OWEN O'NEILL, Willimantic.

To Camp Kelly, San Antonio, Texas, for duty, from Fort Oglethorpe, Lieut. FRANCIS J. O'BRIEN, Middletown.

Delaware

To Camp Dix, Wrightstown, N. J., Seventy-Eighth Division, for duty from Fort Oglethorpe, Lieut. JOSEPH BRINGHURST, Harrington.

District of Columbia

To Army Medical School, Washington, D. C., for a course of instruction, Lieuts. ROY T. HASKELL, Washington; for duty as assistant professor of ophthalmology and in addition to his other duties be designated as ophthalmologist to the U. S. Soldiers' Home Hospital, SAMUEL C. HENNING, Washington.

To Camp Wheeler, Macon, Ga., for duty with the Eighth Field Artillery, from Camp Robinson, Lieut. HOWARD W. BARKER, Washington.

To Fort Oglethorpe, for a course of instruction, from Allentown, Pa., Lieut. WILLIAM F. O'DONNELL, Washington.

To Havana, Cuba, for duty, Capt. EURICO CASTELLI, Washington.

To St. Louis, Washington University, for a course of instruction, Lieut. JOSEPH D. STOUT, Washington.

To be relieved from the duties assigned him by Paragraph 172, Special Orders, No. 184, Aug. 9, 1917, Lieut. WILLIAM H. HUNTINGTON, Washington.

Florida

To Camp American University, Washington, D. C., for duty with the Thirtieth Engineers from Allentown, Pa., Lieut. PAUL L. GOSS, Mulberry.

To Camp Dix, Wrightstown, for temporary duty in the base hospital, from Syracuse, N. Y., Capt. HARRY A. PEYTON, Jacksonville.

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Fort Oglethorpe, Lieut. HUGH ST. G. GEIGER, Kissimmee.

To Camp Kelly, San Antonio, Texas, for duty, from Fort Oglethorpe, Lieuts. ADAM C. WALKUP, McIntosh; LEONARD G. LARNER, Tampa.

To Camp MacArthur, Waco, Texas, Thirty-Second Division, from Fort Oglethorpe, Lieut. EVERARD BLACKSHEAR, Citra.

To Camp Sevier, Greenville, S. C., for temporary duty in the base hospital, Capt. LYSTON H. D. PIERCE, Tampa.

To Mineola, L. I., N. Y., for duty with Field No. 2, Lieut. CLAUDE V. GAUTIER, Passagrelle.

To Tenafly, N. J., for duty as registrar, with Venereal Hospital, from Fort Oglethorpe, Lieut. JOHNSON N. McCARTNEY, Melrose.

To Washington, D. C., for duty with Repair Shop Unit No. 302, for duty, Allentown, Pa., Lieut. WILLIS J. VINSON, Tarpon Springs.

Honorably discharged from the Medical Reserve Corps, on account of having accepted a commission in the U. S. Navy, from Fort Barrancas, Fla., Lieut. MARION E. QUINA, Pensacola.

To the inactive list of the Medical Reserve Corps on account of being physically disqualified for active service, from Allentown, Pa.; Lieut. OVEDIA F. GREEN, Mayo.

Georgia

To Army Medical School, Washington, D. C., for a course of instruction, Lieut. JOSEPH W. SMITH, Jr., Atlanta.

To Camp Beauregard, Alexandria, La., for temporary duty in the base hospital, from Fort Oglethorpe, Lieut. CECIL STOCKARD, Atlanta.

To Camp Greenleaf, Fort Oglethorpe, for a course of instruction, from Camp Robinson, Sparta, Wis., Lieut. CHARLES K. HOLMES, Gaines.

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Fort Oglethorpe, Lieut. JOSEPH H. MULL, Rome.

To Camp McClellan, Anniston, Ala., Twenty-Ninth Division, from Fort Oglethorpe, Lieut. IRA C. H. GARST, Carrollton.

To Camp Sevier, Greenville, S. C., for duty, from Fort Oglethorpe, Lieut. CLAUDE G. SCRUGGS, Valdosta.

To Camp Stuart, Newport News, Va., for duty, from Allentown, Pa., Lieut. MARK E. PERKINS, Millen.

To Camp Wadsworth, Spartanburg, S. C., Twenty-Seventh Division, from Camp Greenleaf, Lieut. LUCIUS P. FARMER, Spread.

To Camp Wheeler, Macon, Ga., Thirty-First Division, for duty, Lieut. FRED B. RAWLINGS, Sandersville.

To Chickamauga Park, Ga., for duty with the Eleventh Infantry, from Camp Wheeler, Ga., Lieut. EGBERT M. TOWNSEND, Tilton.

To Fort Oglethorpe, for a course of instruction, Lieut. DANIEL N. MATHESON, Atlanta.

To Fort Oglethorpe, for a course of instruction from Duval County Hospital, Jacksonville, Fla., Lieut. JAMES M. BRYANT, Savannah.

To Philadelphia, University Hospital, for a course of *instruction in* fractures, and on completion of this course to proceed to Anniston, Ala., Camp McClellan, for temporary duty in the base hospital, from Camp Meade, Lieut. A. NATHAN DYKES, Columbus.

Hawaii

To Rockefeller Institute, for a course of instruction, and on completion of this course, directed to proceed to his proper station, Major FREDERICK FOUCER, Honolulu.

To San Francisco, for duty, from Hawaiian Department, Capt. JOHN B. LUDY, Honolulu.

Idaho

To Camp Lewis, American Lake, Washington, Ninety-First Division, Lieut. FREDERICK W. DIDIER, Harrison.

To Fort Omaha, Neb., U. S. Army Balloon School, for duty, from Camp Lee, Petersburg, Va., Capt. FRANCIS H. POOLE, Pocatello.

Illinois

To Army Medical School, Washington, D. C., for a course of instruction, Lieuts. ALFRED E. JONES, JOSEPH H. ST. JOHN, BEVERIDGE H. MOORE, Chicago.

To Austin, Texas, Military School of Aeronautics, for duty, from Fort Benjamin Harrison, Lieut. GEORGE O. CULLI, Ina.

To Boston, Harvard University, for a course of instruction in orthopedic work, Lieut. HARRY J. FORTIN, Chicago.

To Camp American University, Washington, D. C., for duty, from Allentown, Pa., Lieut. JOSEPH C. KIMBALL, Joliet.

To Camp Custer, Battle Creek, Mich., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Benjamin Harrison, Lieut. EDWIN S. GILLESPIE, Wenona.

To Camp Grant, Rockford, Ill., for duty in the remount department, Capt. GEORGE E. BURDICK, Chicago; Lieut. MAX ROSENSTIEL, Chicago.

To Camp Greenleaf, Ga., for a course of instruction, Capt. WALTER VERITY, Chicago; Lieuts. LOUIS H. HAYES, Alton; FRANK T. DUFFY, Chicago; JOHN W. DUNN, Dieterich; JOHN G. HENSON, Wyoming.

To Camp Lee, Petersburg, Va., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Oglethorpe, Lieut. LUCIUS F. WRIGHT, Dunning.

To Camp Logan, Houston, Texas, for duty, from Allentown, Pa., Lieut. VERNE HAYS, Canton.

To Camp Shelby, Hattiesburg, Miss., for duty, Lieut. CHARLES S. KIBLER, Chicago.

To Camp Sherman, Chillicothe, Ohio, for duty from Army Medical School, Lieut. LEONARD W. WEAVER, Chicago.

To Chanute Field, Rantoul, Ill., for duty from Fort Benjamin Harrison, Capt. LORIN G. COLLINS, Chicago; Lieuts. RALPH G. CRESSMAN, Oglesby; OSCAR YARNELL, Decatur.

To Chicago, County Hospital, for a course of instruction in military roentgenology, Lieut. ARTHUR E. ROGERS, Bloomington.

To Chicago, Neurological School, Presbyterian Hospital, for intensive training in brain surgery, and on completion of this course to return to his proper station, from Fort Benjamin Harrison, Lieut. ORLANDO F. SCOTT, Chicago.

To Fairfield, Ohio, for duty on the Wilbur Wright Field, from Fort Benjamin Harrison, Lieuts. CLAIR L. STEALY, Freeport; JOEL E. TOOTHAKER, Ladd.

To Fort Benjamin Harrison, Ind., for duty with Hospital Train No. 2, Lieuts. EUGENE A. MOULTON, Chicago; for duty with Hospital *Train No. 3,* ROBERT R KIRKPATRICK, Chicago; for duty with Hospital Train No. 4, THEODORE E. MILLER, Chicago.

To Fort McPherson, Ga., for duty in the base hospital, Capt. WILLIAM W. HOYT, Chicago.

To Newport News, Va., Three Hundred and Third Stevedore Regiment, for duty, from Allentown, Pa., Lieut. EARL K. LANGFORD, Chicago.

To New York City, Cornell Medical College, for a course of instruction in military roentgenology, from Fort Benjamin Harrison, Capt. BERNARD M. CONLEY, Wilmette; Lieuts. GUY M. McLEAN, Chicago; CHARLES J. DAVIS, Deerfield. To Post-Graduate Hospital, for a course of *instruction in urology and dermatology,* Lieut. GEORGE E. O'GRADY, Chicago.

To Panama Canal Department, for assignment to duty, from Fort Benjamin Harrison, Lieut. OSCAR W. MICHAEL, Muncie.

To Selfridge Field, Mount Clemens, Mich., for duty, from Fort Benjamin Harrison, Lieut. HARRY E. BROWN, Peoria.

To St. Louis, School of Head Surgery, Washington University, *for* a three weeks' course of instruction, from Fort Benjamin Harrison, Lieut. EDWIN W. HIRSCH, Chicago; from Fort Riley, HUDSON McB. GILLIS, Woodriver.

Honorably discharged *from the* Medical Reserve *Corps,* Lieut. CLARENCE J. MINER, Galesburg.

Indiana

To Austin, Texas, Military School of Aeronautics, for duty, from Fort Benjamin Harrison, Lieut. BYRON J. PETERS, Kokomo.

To Camp American University, Washington, D. C., for duty, from Allentown, Pa., Lieut. LLOYD A. ELLIOT, Elkhart.

To Camp Beauregard, Alexandria, La., *for* duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Benjamin *Harrison,* Lieut. CHARLES F. VOIGHT, New Albany.

To Camp Custer, Battle Creek, Mich., for duty as a member of a board of medical officers for the *special* examination of the command for tuberculosis, from Fort Benjamin Harrison, Lieuts. HARRY H. WARD, Coalmont; JULIUS J. GROSVENOR, Richmond.

To Camp Grant, Rockford, Ill., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis from Fort Benjamin Harrison, Lieut. NOAH W. CLARK, Rossville.

To Camp Greenleaf, Fort Oglethorpe, for a course of instruction, Lieut. JOHN W. BALLARD, Logansport.

To Camp Mills, Garden City, L. I., N. Y., for duty in the base hospital, from Fort Oglethorpe, Lieut. FRANK A. BRAYTON, Indianapolis.

To Camp Pike, Little Rock, Ark., for duty as a *member* of a board of medical officers for the special examination of the command for tuberculosis, from Fort Benjamin Harrison, Capt. ALLEN HAMILTON, Fort Wayne.

To Camp Stuart, Newport News, Va., for duty, from Allentown, Pa., Lieut. JAMES G. KIDD, Roann.

To Fairfield, Ohio, for duty on the Wilbur Wright *Field,* from Fort Benjamin *Harrison,* Lieut. CARLOS C. ROZELLE, La Grange.

To Fort Benjamin Harrison, for a special course of instruction in tuberculosis examination, Lieut. DORSEY D. METCALF, Fort Wayne.

To Fort McHenry, Md., U. S. Army General Hospital No. 2, for temporary duty, from Fort Oglethorpe, Lieut. JAMES M. SHIELDS, Seymour.

To Fort Oglethorpe, for duty as an instructor, from Fort Benjamin Harrison, Major FREDERICK A. TUCKER, Noblesville.

To Fort Riley, Kan., for duty as an instructor, from Fort Benjamin Harrison, Lieut. MAURICE H. KREBS, Huntington.

To Mineola, L. I., N. Y., for duty, *from* Fort Benjamin Harrison, Lieuts. WALDO C. FARNHAM, DONALD D. JOHNSTON, Fort Wayne.

To New York City, Cornell Medical College, for a course of instruction in military roentgenology, from Fort Benjamin Harrison, Lieuts.

AARON M. WINKELPLECK, Alfordsville; THOMAS W. MORGAN, Spartanburg.

To Pittsburgh, for a course of instruction on fractures, and on completion of this course to proceed to Fort Benjamin Harrison for temporary duty, from Fort Benjamin Harrison, Capt. JOHN A. MARTIN, Indianapolis.

To Rockefeller Institute, for a course of instruction, and on completion of this course to report to Roosevelt Hospital for a further course of instruction, from Army Medical School, Lieut. BROWN S. McCLINTIC, Peru.

To St. Louis, Washington University, for a course of intensive training in head surgery, from Fort Benjamin Harrison, Capt. GEORGE B. BREEDLOVE, Martinsville; Lieut. FRED G. EBERHARD, South Whitley.

To Walter Reed General Hospital, Takoma Park, Washington, D. C., for duty, from Gettysburg, Pa., Lieut. ARYINE E. MOZINGO, Tipton.

To Washington, D. C., for duty with Repair Shop Unit No. 303, from Fort Benjamin Harrison, Lieuts. HENLY H. HUBBARD, Boswell; HOMER E. LINE, Chili.

To his home and honorably discharged from the Medical Reserve Corps on account of being physically disqualified for active service, from Camp Grant, Capt. EDDIE DeB. THIXTUM, Indianapolis; honorably discharged from the Medical Reserve Corps, from Fairfield, Ohio, Lieut. EARL D. JEWETT, St. Paul.

Iowa

To Army Medical School, Washington, D. C., for a course of instruction, Lieut. JOHN E. KILEY, Valley Junction.

To Camp Custer, Battle Creek, Mich., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Benjamin Harrison, Lieut. HENRY I. McPHERRIN, Perry.

To Camp Dix, Wrightstown, for temporary duty in the base hospital, Capt. ALDEN H. HOOVER, Des Moines.

To Camp Dodge, Des Moines, for duty in connection with orthopedic work, Capt. FRANCIS LA PIANA, Des Moines; for duty, Lieut. CLYDE L. VAN PATTEN, Anamosa.

To Camp Grant, Rockford, Ill., for duty in the base hospital, Lieut. ELMER J. LAMBERT, Ottumwa.

To Camp Kelly, San Antonio, Texas, for duty, from Fort Oglethorpe, Lieut. FREDERICK E. KELLER, Huxley.

To Camp Lewis, American Lake, Washington, for duty in the base hospital, Capt. MARCUS C. TERRY, Brighton.

To Fort Riley, Kan., for duty with Hospital Train No. 25, Lieut. JOHN F. LOOSBROCK, Fort Des Moines.

To New York City and Philadelphia, for duty in connection with physical examining units, Aviation Section, Signal Corps, and on completion to return to his proper station, Major EUGENE R. LEWIS, Dubuque.

Kansas

To Army Medical School, Washington, D. C., for a course of instruction, Lieuts. EDMUND A. LODGE, Erie; RAYMOND O. DART, Kansas City; BENJAMIN F. FRAZER, Osawatomie.

To Camp Funston, Fort Riley, for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, Lieut. CLARK W. ZUGG, Great Bend.

To Camp Meade, Annapolis Junction, Md., for duty as a member of a board of medical officers for the special examination of tuberculosis, from Camp Greene, Lieut. JACOB H. HALDEMAN, Paola.

To St. Louis, School of Head Surgery, Washington University, for three weeks' course of *instruction, from Fort Riley,* Lieuts. CLARENCE C. HARVEY, Emporia; JESSE D. COOK, Topeka.

Kentucky

To Camp Funston, Fort Riley, Kan., Eighty-Ninth Division, Lieutenant LESLIE, Lockport.

To Camp Greenleaf, Fort Oglethorpe, for a course of instruction, Lieut. HENRY C. T. RICHMOND, Louisville.

To Camp Kelly, San Antonio, Texas, for duty, from Fort Oglethorpe. Lieut. OTTO E. JOHNSON, Lebanon Junction.

To Camp Pike, Little Rock, Ark., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Benjamin Harrison, Lieut. FRANK B. DEWITT, Rockport.

To Hoboken, N. J., for assignment to duty, from Fort Benjamin Harrison, Lieut. ALBERT E. HOLMES, Louisville.

To Honolulu, Hawaii, to the Commanding General, Hawaiian Department, for duty, from Camp Funston, Lieut. THOMAS R. GRIFFIN, Somerset.

To Panama Canal Department, for assignment to duty, from Fort Benjamin Harrison, Lieut. CHARLES C. PHILLIPS, Owensboro.

To Washington, D. C., St. Elizabeth's Hospital, for intensive training in his specialty, from Fort Oglethorpe, Capt. MALCOLM H. YEAMAN, Henderson.

To his home and honorably discharged from the Medical Reserve Corps on account of being physically disqualified for active service, from Camp Lee, Capt. DAVID P. CROCKETT, Hardy; Lieut. MILLARD D. HOSKINS, Varilla; *to his home,* from Fort Oglethorpe, Lieut. EDWARD STUMBO; *to the inactive list of the Medical Reserve Corps,* from Fort Riley, Lieut. FINIS LONDON, Woodburn.

Louisiana

To Camp Kelly, San Antonio, Texas, for duty, from Fort Oglethorpe, Lieut. WILLIAM R. STRANGE, New Orleans.

Honorably discharged from the Medical Reserve Corps, from Fort Riley, Lieut. PRENTISS E. PARKER, Bourg.

Maine

To Camp Lee, Petersburg, Va., for duty, examining troops in nervous and mental diseases, from Allentown, Pa., Lieut. DUDLEY C. KALLOCH, Portland.

To Camp Sherman, Chillicothe, Ohio, for temporary duty in the base hospital, from Camp Shelby, Capts. WARREN E. KERSCHNER, Bath; from Fort Snelling, EDWARD S. ABBOT, Bridgton.

To Hoboken, N. J., for assignment to duty, from Fort Levett, Maine, Capt. FRED T. KOYLE, Fort Levett.

Maryland

To Camp Jackson, Columbia, S. C., for duty, from Fort Oglethorpe, Lieut. MILNOR BORTNER, White Hall.

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty in the quartermaster's training camp, from Fort Oglethorpe, Lieut. JOHN M. ELDERDICE, Salisbury.

To Camp Mills, Garden City, L. I., N. Y., 41st Division, from Fort Oglethorpe, Lieut. SAMUEL J. PRICE, Queenstown, Md.

To Camp Taylor, Louisville, Ky., *for duty, from* Army Medical School, Lieut. SAMUEL A. WHITE, Baltimore.

To Camp Wheeler, Macon, Ga., 31st Division from Fort Oglethorpe, Lieut. RICHARD E. YELLETT, Fallston.

To Hoboken, N. J., for assignment to duty, from Fort Oglethorpe, Lieut. JOHN R. DOWNES, *Preston.*

To his home and honorably discharged *from* the Medical Reserve Corps, on account of being *physically disqualified for* active service, from Fort Oglethorpe, Lieuts. HARRY DIEBEL, Baltimore; from Camp Mills, JOSEPH W. LONG, Walkersville.

Massachusetts

To Army Medical Schocol, Washington, D. C., for the required course of instruction, Lieut. ADOLPH G. SCHNACK, Cambridge Mass.

To Belleville, Ill., Scott Field, for duty, from Fort Benjamin Harrison, Lieut. DOLOR I. BEAUPRE, *Holyoke.*

To Boston, Mass., for a course of instruction *in military roentgenology,* Lieut. JOHN W. LEDBURY, Uxbridge; for a course of instruction in orthopedic work, Lieut. JOHN B. WEBSTER, Boston.

To Camp Custer, Battle Creek, Mich., for duty, from Army Medical School, Lieut. ROSS GOLDEN, Boston.

To Camp Devens, Ayer, Mass., for duty *in the base hospital, from* Fort Benjamin Harrison, Lieut. CHANNING FROTHINGHAM, Jr., Boston.

To Camp Greenleaf, Fort Oglethorpe, for a course of instruction, Lieuts. WILLIAM J. DILLON, Springfield; WILLARD P. STAPLETON, Worcester; *from Camp Devens,* VINCENT J. DiMEUTO, Boston.

To Camp Kelly, San Antonio, for duty, from Fort Oglethorpe, Lieut. WILLIAM F. MacKNIGHT, Fall River.

To Camp Lewis, American Lake, for duty in the base hospital and for cardiovascular examinations *in the camp,* Lieut. WILLIAM J. KERR, Boston.

To Hoboken, N. J., for assignment to duty, from Fort Benjamin Harrison, Lieuts. WERNER HILTPOLD, Easthampton; WILLIAM F. LEMAIRE, Lynn; *WILLARD W. LEMAIRE, Worcester.*

To Fort Oglethorpe, for duty as an instructor *from Fort Benjamin* Harrison, Lieut. WILLIAM R. OHLER, Brookline.

To Fort Riley, Kansas, for duty as an instructor, from Fort Benjamin Harrison, Capts. JOHN D. PETERS, Great Barrington; for duty with the 92nd Division, from Fort Benjamin Harrison, EDWARD B. SIMMONS, Worcester.

To New York City, Rockefeller Institute, for instruction in the therapy of pneumonia, Lieut. WARREN T. VAUGHAN, Boston.

To Philadelphia, Pa., for a course of instruction in orthopedic surgery, Lieut. MARTIN H. SPELLMAN, Whitman.

To St. Louis, Washington University, for a course of intensive training in head surgery, *from Fort Benjamin Harrison,* Lieut. CHARLES F. CANEDY, Greenfield.

Honorably discharged from the Medical Reserve Corps, for the good of the service, from Camp Doniphan, Lieut. JOHN H. ANDERSON, Brockton.

Michigan

To Army Medical School, for the required course of instruction, Lieut. DON C. BARTHOLOMEW, Detroit.

To Camp Greenleaf, Fort Oglethorpe, for a course of instruction, *Capt.* EMILE C. HOULE, Neganee; Lieuts. ROY L. LAIRD, Ann Arbor; MORRELL M. JONES, Detroit; JOSEPH G. KNAPP, Wyandotte; from School of Plastic and Oral Surgery, Washington University, St. Louis, ALBERT S. BARR, Greenville.

To Camp Lee, Petersburg, Va., for duty, from Army Medical School, Lieut. HAROLD E. CLARK, Detroit.

To Camp Pike, Little Rock, Ark., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Benjamin Harrison, Lieut. RAY L. FELLERS, Detroit.

To Fort Oglethorpe, for duty as an instructor, from Fort Benjamin Harrison, Major SAMUEL C. GURNEY, Detroit; Capt. GEORGE S. FODEN, Highland Park.

To Fort Riley, Kan., 92d Division, for duty from Fort Benjamin Harrison, Major DAVID B. DOWNING, Detroit.

To Langley Field, Hampton, Va., for duty, *from* Fort Benjamin Harrison, Lieuts. CLAYTON G. WOODBULL, Decker; WILLIAM S. CONNERY, Detroit.

To New York City, Bellevue Hospital, for a course of instruction on fractures and upon completion of this course to proceed to his home and return to the inactive list of the Medical Reserve Corps, from

Rockefeller Institute, Lieut. JOHN T. HODGEN, Grand Rapids; to Cornell Medical College for a course of instruction in military roentgenology, Lieut. THEODORE KOLVOORD, Battle Creek.

To Philadelphia, Pa., for orthopedic instruction, from Army Medical School, Lieut. WILLIS K. WEST, Painesdale.

To Rockefeller Institute, for a course of instruction and upon completion of this course to report to Roosevelt Hospital for a further course of instruction, from Army Medical School, Lieut. ROBERT A. HALE, Ann Arbor.

To Selfridge Field, Mt. Clemens, Mich., for duty, from Fort Benjamin Harrison, Capt. HOWARD W. STUCH, Allegan.

To St. Louis, Washington University, for a course of intensive training in head surgery, from Fort Benjamin Harrison, Capt. WILLIAM C. McCUTCHEON, Cassopolis.

Honorably discharged from the Medical Reserve Corps on account of being physically disqualified for active service, from Camp Greenleaf, Lieut. GEORGE R. ADKIN, Grand Rapids.

Minnesota

To Camp Grant, Rockford, Ill., 86th Division, for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, Lieut. WILLIAM C. JENSEN, St. Paul.

To Camp Kelly, San Antonio, Tex., for duty, from Fort Oglethorpe, Lieut. SOLOMON F. RUDOLF, Albert Lea.

To Camp Pike, Little Rock, Ark., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Benjamin Harrison, Lieut. THOMAS G. CLEMENT, Vernon Center.

To Fort Logan H. Roots, Ark., for duty, Lieut. LEON A. WILLIAMS, Slayton.

To Fort Oglethorpe, for a course of instruction, Lieuts. AUVIGNE M. RANDALL, Ashby; KENNETH W. WILDER, Minneapolis.

To Fort Riley, Kan., for duty, Lieuts. HENRY E. DOUGLAS, Hutchinson; PIO BLANCO, Rochester.

To New York City, Cornell Medical College, for a course of instruction in military roentgenology, from Fort Benjamin Harrison; to Rockefeller Institute for instruction in therapy of pneumonia, Lieut. WALTER E. GREMPLER, Minneapolis.

To St. Louis, Mo., School of Head Surgery, Washington University, for a three week's course of instruction, from Fort Riley, Capt. OLIVER E. STEWART, Bricelyn, Lieut. FLOYD W. BURNS, St. Paul.

Mississippi

To Camp Kelly, San Antonio, Texas, for duty, from Fort Oglethorpe, Lieut. JOHN E. McDILL, Shaw.

To Camp Pike, Little Rock, Ark., for duty, from Camp Dix, Lieut. HARDIE R. DAVIS, North Carrollton.

To Camp Shelby, Hattiesburg, Miss., 38th Division from Camp Greenleaf, Fort Oglethorpe, Capt. AUGUSTUS M. HARRELSON, Newton.

To Chickamauga Park, Ga., Reorganization Camp for duty with the 6th Infantry, from Fort Oglethorpe, Lieut. JESSE D. WESTMORELAND, Taylor.

To Fort Oglethorpe, for a course of instruction, Lieut. GEORGE D. MASON, Clara.

To Jackson, Miss., for the purpose of examining applicants for appointment in the Medical Reserve Corps, and upon completion of this duty, to return to his proper station at Meridian, Miss., Lieut. INMAN W. COOPERS, Meridian.

To St. Louis, Washington University, for a course of intensive training in head surgery, from Fort Oglethorpe, Lieut. HEWITT JOHNSTON, Biloxi.

To Washington, D. C., for duty with Repair Shop Unit No. 303, from Fort Oglethorpe, Lieut. CHARLES E. LEHMBERG, Artesia.

Honorably discharged from the Medical Reserve Corps, from Camp Meade, Lieut. THOMAS W. REAGAN, Union.

Honorably discharged from the Medical Reserve Corps of the Army, from Fort Des Moines, Ia., Lieut. ROBERT L. JOHNSON, Algoma.

To his home and returned to the inactive list of the Medical Reserve Corps, from Fort Oglethorpe, Lieut. GEORGE J. MANCILL, Indianola.

Missouri

To Camp American University, Washington, D. C., for duty, from Allentown, Pa., Lieut. WILFORD A. FAIR, Pleasant Hill.

To Camp Cody, Deming, N. M., for duty, from Fort Riley, Kan., Capt. LINDAY S. MILNE, Kansas City.

To Camp Custer, Battle Creek, Mich., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Benjamin Harrison, Lieut. JAMES B. BIGGS, Bowling Green.

To Camp Funston, Kan., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, Capt. KURT STUMBER, St. Charles.

To Camp Grant, Rockford, Ill., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis from Fort Benjamin Harrison, Lieut. JACOB J. KENNEDY, Frankford.

To Camp Greenleaf, Fort Oglethorpe, for a course of instruction, from School of Plastic and Oral Surgery, Washington University, St. Louis, Mo., Capt. CHARLES A. VOSBURGH, St. Louis; for a course of instruction, Lieuts. HALBERT R. HILL, Bachelor; JOSEPH F. BREDECK, St. Louis.

To Camp Kelly, San Antonio, Texas, for duty, from Fort Oglethorpe, Lieut. JOHN D. ROBINSON, Belgrade.

To Camp Meade, Annapolis Junction, Md., for duty as members of a board of medical officers for the specical examination of the command for tuberculosis, from Camp Green, Lieut. DELANE S. CALHOUN, St. Louis.

To Camp Wheeler, Macon, Ga., for temporary duty in the base hospital, from Fort Oglethorpe, Lieut. MARTIN H. POST, St. Louis.

To Fort Logan H. Roots, Ark., for duty, Capt. WILLIAM T. J. BAILEY, Caseville.

To Fort Oglethorpe, for a course of instruction, Lieut. LUTHER H. WALLON, Summerville.

To Fort Riley, for duty with Hospital Train No. 25, Lieut. MORGAN L. CLINT, Meadville.

To New Orleans, La., Charity Hospital for a course of instruction on fractures and on completion of this course to proceed to Fort Bliss, Texas, for temporary duty, from Fort Bliss, Capt. HAROLD P. KUHN, Kansas.

To New York City, Bellevue Hospital for a coures of instruction on fractures and on completion of this course to proceed to Fort Snelling, Minn., for temporary duty in the base hospital, from Fort Snelling, Capt. ROBERT BURNS, Jr., St. Louis.

To New York City, Cornell Medical College, for a course of instruction in military roentgenology, from Fort Riley, Kan., Lieut. EVERETT R. DEWEESE, Kansas City; to Rockefeller Institute for a course of instruction in the treatment of pneumonia, and on completion of this course to his proper station, from Camp MacArthur, Lieut. HERBERT S. LANGSDORF, St. Louis.

To Philadelphia, Pa., Eddyston, Pa., New York City, Hoboken, N. J., Hastings-on-Hudson, N. Y., Bridgeport, Conn., New Haven, Conn., Hartford, Conn., Boston, Mass., Lowell, Mass., St. Albans, Vt., Albany, N. Y., Utica, N. Y., Ilion, N. Y., Watertown, N. Y., St. Louis, Mo., East Alton, Ill., Cincinnati, Ohio, for the purpose of making special inspections of the sanitary conditions in munition plants and upon completion of this duty will return to his proper station, Lieut. FRANK L. MORSE, St. Louis.

To St. Louis, Mo., Aviation Section, Signal Corps, as a member of the physical examining unit, Lieut. JOSEPH J. REILLY, St. Louis. To Washington University, for a course of intensive training in head surgery, from Fort Riley, Lieuts. JOHN R. ELLIOT, Clarksdale; Edwin C. FUNSCH, ROY JOHNSON, St. Louis.

Montana

To Camp Dodge, Ia., for duty at the remount station, Lieut. LEO C. LeCLAR, Twin Bridges.

To St. Louis, Mo., School of Head Surgery, Washington University, for a three weeks' course of instruction, from Fort Riley, Lieuts. KARL A. SNYDER, Great Falls; ROBERT L. OWENS, Hamilton.

Nebraska

To Camp Beauregard, Alexandria, La., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis from Fort Oglethorpe, Lieut. TORRENCE C. MOYER, Lincoln.

To Camp Funston, Fort Riley, Kan., 59th Division for duty, from Fort Riley, Lieut. CHARLES P. BRENN, Western.

To Camp Greenleaf, Fort Oglethorpe, for a course of instruction, Lieut. FREDERICK J. WURTELE, North Platte.

To Camp Meade, Annapolis Junction, Md., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Camp Greene, Lieut. WILLIAM N. ANDERSON, Omaha.

To Fort Leavenworth, Kan., for duty, Capt. ELLIS H. WHITEHEAD, Osmond.

To Fort Riley, Kan., for duty in the base hospital, Lieut. WILLIAM C. BARTLETT, Alma.

Nevada

To Camp Gordon, Atlanta Ga., for duty, from Army Medical School, Lieut. JAMES P. CRAWFORD, Mina.

New Hampshire

To Camp Greenleaf, Fort Oglethorpe, for a course of instruction, Lieut. GEORGE F. DWINELL, Manchester.

To Fort Oglethorpe, for duty as an instructor from Fort Benjamin Harrison, Lieut. JOHN A. DREW, Kumney.

To St. Louis, Washington University, for a course of intensive training in head surgery, from Fort Benjamin Harrison, Lieuts. JOHN J. OSTERHOUT, Keene; JOHN B. WARDEN, Whitefield.

New Jersey

To Camp Devens, Ayer, Mass., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Walter Reed General Hospital, Lieut. GRANT THORBURN, Newark.

To Camp Dix, Wrightstown, N. J., for duty, from Fort Ontario, Capt. WIDMER E. DOREMUS, Newark; Lieut. WALTER A. HICKMAN, Princeton.

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Fort Oglethorpe, Lieut. JOHN L. MEEKER, Newark.

To Camp Kelly, San Antonio, Texas, for duty, from Fort Oglethorpe, Lieut. CLARENCE LeF. VREELAND, Pompton Lakes.

To Camp Lee, Petersburg, Va., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis from Fort Oglethorpe, Lieut. HOWARD S. SMITH, Newark.

To Camp Mills, for duty to examine the troops who have not already been examined for tuberculosis and cardiovascular abnormalities, and on completion of this duty to return to his proper station, from Camp Upton, Lieut. GEORGE B. EMORY, Newark.

To Camp Pike, Little Rock, Ark., for duty as a member of a board for the special examination of the command for tuberculosis, from Camp Stuart, Newport News, Va., Lieut. WILLIAM H. HAINES, Audubon.

To Camp Upton, Yaphank, L. I., N. Y., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Walter Reed General Hospital, Takoma Park, Lieut. GEORGE B. EMORY, Newark.

To Fort Myer, Va., for duty, Capt. ROBERT E. SOULE, Newark.

To Fort Oglethorpe, for a course of instruction, Capt. GEORGE B. GALE, Newark; Lieut. JOHN L. LUND, Perth Amboy.

To New York City, Bellevue Hospital, for a course of instruction on fractures and on completion of this course to proceed to Wrightstown, N. J., for temporary duty in the base hospital, Lieut. LOUIS E. POOLE, West Hoboken.

To Tenafly, N. J., for duty as adjutant with venereal hospital, from Fort Oglethorpe, Capt. BLASE COLE, Newton.

To Walter Reed General Hospital, Takoma Park, D. C., for a special course of instruction in tuberculosis examinations, Capt. MAURICE ASHER, Newark; Lieuts. GRANT THORBURN, Newark; SAMUEL R. FAIRCHILD, Penngrove.

To Washington, D. C., for duty with Repair Shop Unit *No. 302,* for *duty, from* Allentown, Pa., Lieut. CLAUDE W. THOMAS, Woodstown.

To his home and to the inactive list of the Medical Reserve Corps on account of being physically disqualified for active service, from Camp Meade, Lieut. L. LAWRENCE H. ROGERS, Trenton.

New York

To Army Medical School, Washington, D. C., for a course of instruction, Lieuts. HARRY B. HANSEN, WILLIAM P. SMALE, New York City; from Gettysburg, Pa.; Lieut. JOSEPH PRICE, New York City; for orthopedic work, JACOB UNDANG, Brooklyn.

To Boston, Mass., and *report in person to the* Commanding General Northeastern Dept., for duty, *from* Fort Michie, Lieut. RUEL B. KARIOBE, *New York City; to Boston City Hospital,* for a course of instruction on fractures and *on completion of this* course to proceed to Camp Cody, *Deming, N. M., for temporary duty in* the base hospital, from Camp Bartlett, Lieut. HENRY E. McGARVEY, Bronxville.

To Camp Beauregard, Alexandria, La., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Oglethorpe, Capt. JAMES C. HARKENS, New York City.

To Camp Custer, Battle Creek, Mich., for duty, from Psychopathic Hospital, Ann Arbor, Mich., Capt. GEORGE F. MILLS, Oneida.

To Camp Devens, Ayer, Mass., for duty, from Camp Sherman, Lieuts. CHARLES E. CONGDON, Buffalo; for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Walter Reed General Hospital, Lieut. ADELBERT C. ABBOTT, Syracuse.

To Camp Greene, Charlotte, N. C., for duty, to be relieved of his present duties, Lieut. HERMANN ELWYN, New York City.

To Camp Greenleaf, Fort Oglethorpe, for a course of *instruction,* Capt. JAMES F. NAGLE, New York City; Lieuts. VINCENT J. T. O'NEILL, Highland Falls; ROWLAND P. BLYTHE, CHARLES G. DARLINGTON, GEORGE A. KOENIG, WALTER M. KRAUS, CHARLES H. NAMMACK, MILTON W. PLATT, BERNARD L. ROBINS, CORNELIUS J. TYSNO, JOHN H. WYCKOFF, New York City; WARREN C. FARGO, Warsaw.

To Camp Jackson, Columbia, S. C., for duty in the base hospital, from Camp Mills, Capt. FRANKLIN B. VAN WART, Brooklyn.

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Fort Oglethorpe, Lieuts. HENRY McI. MOORE, New York City; MACY L. LERNER, Rochester.

To Camp Kelly, San Antonio, Texas, for duty, from Fort Oglethorpe, Capt. RAYMOND F. LONGACRE, New York City; Lieut. BEEKMAN J. DELATOUR, New York City.

To Camp Lee, Petersburgh, Va., for consultation with the division surgeon and base-hospital surgeon in connection with matters pertaining to nervous and mental diseases, and upon completion of this duty to his proper station, from Camp Greene, Major PEARCE BAILEY, New York City; for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Oglethorpe, Lieut. SIDNEY TRATTNER, New York City.

To Camp Logan, Houston, Texas, for duty in the base hospital, Lieut. LOUIS D. MINSK, New York City.

To Camp Meade, Annapolis Junction, for duty, from Fort Ontario, Capt. WILSON C. WOOD, Madison Barracks, N. Y.; for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Camp Greene, Capt. GEZA KREMER, New York City; Lieut. THOMAS F. ELLIS, New York City.

To Çamp Mills, for duty to examine the troops who have not already been examined for tuberculosis and cardiovascular abnormalities, and upon completion of this duty to return to his *proper* station, from Camp Upton, Lieuts. HENRY C. DREW, Brooklyn; EDWIN F. SAMSON, New York City; for *examination,* Lieut. ALBERT C. MARGULIES, New York City.

To Camp Pike, Little Rock, Ark., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Benjamin *Harrison,* Lieut. ROBERT R. McCULLY, Auburn.

To Camp Stuart, Newport News, Va., for duty, from Allentown, Pa., Lieut. MARK F. HEALY, New York City.

To Camp Upton, Yaphank, L. I., N. Y., for duty, from Fort Riley, Kan., Lieut. ALBERT C. DURAND, Ithaca.

To Chicago, Ill., Neurological School, Presbyterian Hospital, for intensive training in brain surgery, from Orthopedic School, Boston, Mass., Major CHARLES HENNINGTON, Rochester.

To Concentration Camp, Garden City, L. I., N. Y., for duty, from Camp Mills, Lieut. ROBERT H. FOWLER, New York City.

To Fort Benjamin Harrison, Indianapolis, for the purpose of taking the examination for admission to the medical corps, and upon completion *of this duty to return to his proper* station, from Fort Wayne, Mich., Lieut. JOHN J. LANCER, New York City.

To Fort Oglethorpe, for *duty as an instructor,* from Fort Benjamin Harrison, Major FREDERIC W. LOUGHRAN, New York City; Capt. HERBERT L. CELLER, New *York City; Lieut.* VICTOR C. VON UNRUH, New York City; for duty with Hospital Train No. 23, Lieut. HAROLD B. JOHNSON, Buffalo.

To Fort Riley, Kansas, for duty with Hospital Train No. 24, Lieut. WILLIAM E. McCORMACK, *Brooklyn.*

To Fort Sill, Okla., U. S. School for Aerial Observers, for duty, *from* Aviation Section, Signal Corps, Pittsburgh, Pa., Lieut. EDWIN S. INGERSOLL, *Rochester.*

To Langley Field, Hampton, Va., for duty, from Fort Benjamin *Harrison,* Lieuts. *WARTHER* C. A. *STEFFEN,* College Point; EDWARD L. HAZELTINE, Jamestown.

To Mineola, L. I., N. Y., for duty, *from* Fort Benjamin Harrison, Lieuts. PAUL B. BETOWSKI, Bath; DANIEL M. MacDONALD, New York.

To New York City, Bellevue Hospital, for a course of instruction on fractures, and upon *completion* of *this course to proceed* to *Fort* Ontario, N. Y., for temporary duty, *from* Fort Ontario, Major RALPH A. STEWART, New York City. *To proceed to Camp Sherman,* Chillicothe, Ohio, for temporary duty, Capt. CHARLES W. HOYT, Rochester; from Rockefeller Institute, Capt. ETHAN F. BUTLER, Yonkers. *To Cornell Medical College,* for a course of instruction in military roentgenology, *from* Fort Benjamin Harrison, Lieut. BERNARD S. STRAIT, Penn Yan. *To Post-Graduate Hospital,* for a course of instruction in *urology* and *dermatology,* Lieuts. SAMUEL PARNASS, Brooklyn; WILLIAM G. PHILLIPS, Brooklyn. *To U. S. Army General Hospital No. 1,* for temporary duty, Lieut. ROYAL A. SCHAAF, New York City.

To Philadelphia, Pa., for a course of instruction on fractures, and upon *completion of* this course to *proceed to* Camp Jackson, for temporary duty in base hospital, from Allentown, Pa., Lieut. JOSEPH S. BALDWIN, Brooklyn.

To Pullman, Ill., for duty with Hospital Train No. 1, from Fort Benjamin *Harrison,* Lieut. GEORGE B. REITZ, *Brooklyn.*

To Rockefeller Institute, New York City, for a course of instruction, and upon completion of this course to report to Bellevue Hospital for a further course of instruction, Major GEORGE B. WALLACE, New York City. Upon completion of this course to proceed to Camp Sheridan for temporary duty in the base hospital, Capt. EDWIN W. PEET, New York City.

To St. Louis, Mo., School of Plastic and Oral *Surgery,* Washington University, for duty, to the military director of the *school,* Capt. *ROBERT T. FRANK,* New *York City;* from *Fort Benjamin Harrison,* Lieut. JAMES T. HARRINGTON, Poughkeepsie.

To Syracuse; N. Y., for duty as *medical member* of *examining board,* recruiting officer and temporary officer in charge of physical *examinir unit, from Examining* Unit, Aviation Section, Signal *Corps, New York* City, Lieut. FEDOR L. SENGER, Brooklyn.

To Walter Reed General Hospital, Takoma Park, D. C., *for* a *special* course *of* instruction in tuberculosis examinations, Capts. THEODOR J. ABBOTT, New York City; JOSEPH R. CULKIN, Rochester; STEPHEN A. MAHADY, Utica; Lieuts. DANIEL R. ROBERT, LOUIS D. STERN, Brooklyn; EDWARD P. EGLEE, Flushing; CLYDE D. OATMAN, Poolville; for duty in the *urologic division,* LEO C. DuBOIS, *Beacon.*

Honorably discharged from the *Medical Reserve Corps, on* account of being *physically* disqualified for active service; *Lieut.* ALBERT C. MARGULIES, Brooklyn; *from Fort Benjamin Harrison, Lieut.* JOSEPH T. SLONIMSKY, New York City; *from* Fort *Oglethorpe,* Lieut. JOHN W. MUNRO, *Syracuse.*

To *his home and* the inactive list of the Medical Reserve Corps, Capt. GEZA KREMER, *New York City; Lieut. FRANK E. MILLER,* New York City.

North Carolina

To Camp Beauregard, Alexandria, La., *39th* Division, from Fort Oglethorpe, Lieut. RANDOLPH E. WATTS, Oriental.

To Camp Custer, Battle Creek, Mich., for duty, from Army Medical School, Lieut. MALTHUE R. FREEMAN, Bailey.

To Camp Jackson, Columbia, S. C., for active service, Lieut. ALEXANDER F. JONES, Ararat.

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Fort Oglethorpe, Lieut. JOHN L. MOORE, Wendell.

To Camp Lee, Petersburg, Va., 80th Division, for duty, from Fort Oglethorpe, Lieut. BENJAMIN F. CLIFF, East Flat Rock.

To Camp Meade, Annapolis Junction, Md., for duty *as a member* of a board of medical officers for the special examination of the command for tuberculosis, from Camp Green, Lieut. FREDERICK B. SPENCER, Salisburg.

To Camp Sevier, Greenville, S. C., for duty, *from* Fort Oglethorpe, Lieut. THOMAS J. SUMMEY, Brevard.

To Fort Oglethorpe, Ga., for the required course of instruction, Lieut. OSCAR W. KING, Mooresville.

To New York City, Bellevue Hospital, for a course *of instruction* on fractures, and upon completion of this course to Camp Sheridan for temporary duty in the base hospital, from Camp Sheridan, Capt. EVERETT A. LOCKETT, Winston-Salem.

To Walter Reed General Hospital, Takoma Park, D. C., for a course of instruction in tuberculosis examination, Lieut. JOHN DONNELL.., Charlotte.

To his home and the inactive list of the Medical Reserve Corps, from Camp Stanley, Leon Springs, Texas, Lieut. JAMES N. MITCHNER, Kingston.

To his home and the inactive list of the Medical Reserve Corps, on account of being physically disqualified for active service from Camp

Gordon, Lieuts. CHARLES Z. CHANDLER, Sylvia; from Camp Meade, Lieut. EDWARD S. KING, Sweethome.

Honorably discharged from the Medical Reserve Corps, on account of being physically disqualified for active service, from Camp Sevier, Lieut. JAMES M. TEMPLETON, Cary.

North Dakota

To Boston, Mass., General Hospital for a course of instruction on fractures, and upon completion of this course to proceed to Fort Oglethorpe for a course of instruction, Major ERIC P. QUAIN, Bismarck.

Ohio

To Army Medical School, for a course of instruction, Lieut. JOHN D. NOURSE, Kenton.

To Boston, Mass., General Hospital, for a course of instruction on fractures, and upon completion of this course to proceed to Camp Sherman, Chillicothe, Ohio, for temporary duty in the base hospital, Lieut. GEORGE M. LOGAN, Akron.

To Camp Custer, Battle Creek, Mich., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Benjamin Harrison, Lieuts. IVAH J. RANSBOTTOM, Coldwater; CHARLES R. DEEDS, Dalton.

To Camp Gordon, Atlanta, Ga., 82d Division, for duty, from Fort Oglethorpe, Lieut. HERMAN L. CRARY, Letart Falls.

To Camp Greenleaf, Fort Oglethorpe, for a course of instruction, Lieuts. ADOLPHUS W. FOERTMEYER, Cincinnati; HARRY E. WILSON, Martins Ferry.

To Camp Pike, Little Rock, Ark., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, Lieut. GEORGE L. HAEFELE, Cleveland.

To Camp Sherman, Chillicothe, Ohio, for duty in the base hospital, Lieut. MELVILLE D. AILES, Warren.

To Camp Stuart, Newport News, Va., for duty, from Allentown, Pa., THOMAS RICHARD KENNERDELL, Cleveland.

To Camp Taylor, Louisville, Ky., for temporary duty at the base hospital, from Fort Benjamin Harrison, Lieut. LAUREN N. LINDENBURGER, Troy.

To Canal Zone, to report in person to the Commanding General, Panama Dept., for duty, from Fort Benjamin Harrison, Indiana, Lieuts. RALPH H. SILL, Cleveland; CARLTON C. STOKES, Port Clinton.

To Chicago, Ill., Neurological School, Presbyterian Hospital, for intensive training in brain surgery, from Orthopedic School, Boston, Mass., Lieut. CHARLES M. PAUL, Cincinnati.

To Fort Benjamin Harrison, Indiana, for a course of instruction in the hospital on fractures, and upon completion of this course to proceed to Louisville, Ky., for temporary duty in the base hospital, from Camp Taylor, Lieuts. DE FNNA D. DE NEEN, Cincinnati; for a special course of instruction in tuberculosis examining, JOSEPH M. ULRICH, Akron; IRWIN W. MAYBERRY, Scott Town; for duty with Hospital Train No. 2, CLYDE K. STARTZMAN, Bellefontaine; for duty with Hospital Train No. 3, HARVEY N. TRUMBULL, Woodville.

To Fort Oglethorpe, Ga., for duty in the provisional base hospital, from Fort Benjamin Harrison, Lieuts. OTTO N. WARNER, Conneaut; for a course of instruction, FRANK B. SNODGRASS, Kenton.

To Mineola, L. I., N. Y., for duty, from Fort Benjamin Harrison, Lieuts. RUDOLPH S. REICH, JOHN W. TIPPIE, Cleveland; CLARENCE J. SCHIRACK, Coldwater; HERMAN G. ROSENBLUM, Toledo; JAMES S. MARINER, Youngstown.

To Rockefeller Institute, New York City, for a course of instruction in the therapy of pneumonia, Lieuts. HENRY J. JOHN, Cleveland; from Allentown, Pa., JOSEPH E. McCLELLAND, Cleveland.

To Selfridge Field, Mount Clemens, Mich., for duty, from Fort Benjamin Harrison, Lieut. JOHN A. TRUE, Port Clinton.

To St. Louis, Mo., School of Head Surgery, Washington University, for a three weeks' course of instruction, from Fort Riley, Lieuts. WILLIAM S. NICHOLS, Cleveland; ROY F. JOLLEY, Richwood.

To Washington, D. C., for duty as orthopedic instructor, Major HERBERT D. MADDOX, Cincinnati.

Honorably discharged from the Medical Reserve Corps on account or being physically disqualified for active service, from Camp Lewis, Capt. LOUIS L. SYMAN, Springfield.

Oklahoma

To Camp Devens, Ayer, Mass., for duty, from Army Medical School, Lieut. DAVID D. PAULUS, Oklahoma City.

To Camp Doniphan, Fort Sill, Okla., for duty, from base hospital, Fort Sill, Okla., Lieut. JOSEPH M. HANCOCK, Muskogee.

To Camp Jackson, Columbia, S. C., for duty, from Army Medical School, Lieut. PHILIP L. COULTER, Tulsa.

To Fort Sill, Okla., School of Aerial Observers, for duty with the 3d Balloon Squadron, Lieut. HENRY DeW. SHANKLE, Hastings.

To Philadelphia, Pa., University Hospital, for a course of instruction on fractures, and upon completion of this course to proceed to Fort Sam Houston, Texas, for temporary duty; from Fort Sam Houston, Lieut. ABRAHAM L. BLESH, Oklahoma City.

To his home and the inactive list of the Medical Reserve Corps, from Camp Mills, Major LEWIS A. CONNER, Coalgate; from Camp Cody, Lieut. CHARLES E. HOUSER, Vici; from Camp Bowie, Lieut. ALBERT N. EARNEST, Muskogee.

Oregon

To Army Medical School, Washington, D. C., for a course of instruction, Lieut. ROBERT A. SHERWOOD, Portland.

To Camp Beauregard, for duty as plastic and oral surgeon, section of surgery of the head, with the base hospital, Capt. JUSTIN M. WAUGH, Hood River.

Pennsylvania

To Aberdeen, Md., for duty, from Fort Benjamin Harrison, Lieut. JAMES L. JUNK, Connellsville.

To Army Medical School, Washington, D. C., for a course of instruction from Fort Oglethorpe, Lieut. SAMUEL R. SKILLERN, Jr., Philadelphia.

To Boston, Mass., City Hospital, for a course of instruction on fractures and on completion of this course to proceed to Camp Beauregard, Alexandria, La., for temporary duty, from Fort Ethan Allen, Vt., Lieut. GEORGE W. MILLER, Norristown.

To Camp Beauregard, Alexandria, La., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Oglethorpe, Lieut. WILLIAM RUOFF, Philadelphia.

To Camp Devens, Ayer, Mass., 76th Division from Fort Oglethorpe, Lieut. JOHN S. ANDERSON, Greensburg; for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Walter Reed General Hospital, Lieut. HARRISON M. STEWART, Mont Alto.

To Camp Dix, Wrightstown, N. J., for duty, from Allentown, Pa., Lieut. WALTER WHITEHOUSE, Marcus Hook.

To Camp Dodge, Des Moines, Ia., for duty, from Army Medical School, Lieut. FRANK S. MATLACK, Philadelphia.

To Camp Gordon, Atlanta, Ga., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Walter Reed General Hospital, Capt. ALBERT P. FRANCINE, Philadelphia.

To Camp Greene, Charlotte, N. C., for duty in the base hospital, from Dept. Laboratory, Atlanta, Ga., Capt. CLAUDE P. BROWN, Glen Olden.

To Camp Greenleaf, for a course of instruction, Lieuts. PHILIP L. HATCH, Coudersport; from Fort Benjamin Harrison, DANIEL E. L. STEDEM, Philadelphia.

To Camp Hancock, Augusta, Ga., Twenty-Eighth Division, from Fort Oglethorpe, Lieut. HOWARD L. FARQUHAR, Pittsburgh.

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Fort Shelby, Lieut. ADDISON M. ROTHROCK, Reading; from Fort Oglethorpe, Lieut. ISREAL P. P. HOLLINGSWORTH, West Chester.

To Camp Kelly, San Antonio, Texas, for duty, from Fort Oglethorpe, Lieuts. JOHN S. STRUTHERS, Danville; SAMUEL E. LYON, Mount Braddock; Lieuts. M. ROGERS, Philadelphia; JAMES E. JAMES, Plymouth.

To Camp Logan, Houston, Texas, Thirty-Third Division, from Fort Oglethorpe, Lieut. WALTER L. HENDERSON, East McKeesport.

To Camp Meade, Annapolis Junction, Md., for duty as member of a board of medical officers for the special examination of the command for tuberculosis, from Camp Greene, Lieut. JAMES M. McNALL, Wilkinsburg; from Fort Benjamin Harrison, Lieut. WILLIAM H. HERR, Lancaster, for duty, from Allentown; Lieut. CHARLES J. CAVANAGH, Philadelphia.

To Camp Mills, Garden City, L. I., for duty in the base hospital, Major JACK C. GITTINGS, Philadelphia.

To Camp Pike, Little Rock, Ark., for duty, from Army Medical School, Lieut. PAUL M. N. KYLE, Pittsburgh; from Fort Oglethorpe, Lieut. JAMES N. DOUGLAS, Scranton.

To Camp Stuart, Newport News, Va., for duty, from Allentown, Pa., Lieut. DWIGHT E. LONG, Freeburg; from Fort Oglethorpe, Lieuts. FRANK L. KNOX, Claysville; WILLIAM H. HAINES, Thompsontown.

To Camp Taylor, Louisville, Ky., Eighty-Fourth Division, from Fort Oglethorpe, Capt. PETER H. DALE, State College; Lieut. ARTHUR R. GAINES, Altoona.

To Fort Oglethorpe, for duty as an instructor, from Fort Benjamin Harrison, Major THEODORE B. APPEL, Lancaster.

To Chicago, Neurological School, Presbyterian Hospital, for intensive training in brain surgery, and on completion of this course to return to his proper station, from Fort Benjamin Harrison, Capt. LOUIS J. C. BAILEY, Greensburg.

To Essington, Pa., for duty, from Camp Dix, Lieut. ROBERT S. McCOOMBS, Philadelphia.

To Hoboken, N. J., for assignment to duty, from Allentown, Pa., Lieut. JOSEPH W. DENNIN, Philadelphia; from Fort Oglethorpe, Lieuts. WALTER E. LANG, Allentown; HERBERT L. RANSOM, Pittston; CONNELL E. MURRIN, Scranton.

To Mineola, L. I., N. Y., Signal Corps, Aviation School, Hazelhurst Field, for duty, from Middletown, Pa., Lieut. WILLIAM P. McINTOSH, Philadelphia.

To Newport News, Va., for duty, at the Port of Embarkation, from Fort Oglethorpe, Lieut. WILLIAM F. HARRISON, Plains.

To New York City, for the purpose of attending the meeting of the Bureau of Standards on business in connection with the Medical Department, and on completion of this duty will return to his proper station, Major DAVID SILVER, Pittsburgh. *To Bellevue Hospital,* for a course of instruction on fractures, and on completion of this course to proceed to Fort Worth, Texas, Camp Bowie, for temporary duty, in the base hospital, from Camp Bowie, Capt. JAMES G. FLYNN, Ridgway.

To Philadelphia, for duty as a medical member of the examining board and assistant to the recruiting officer from Essington, Pa., Lieut. JOHN P. GALLAGHER, Philadelphia; for a special course of instruction at the School of Plastic and Oral Surgery, from Army Medical School, Lieut. ARTHUR T. HENRICI, Pittsburgh.

To Roanoke, Va., for conference with the Virginia Committee
Medical Defense, and on completion of this duty to return to his pr
station in this city, Major HENRY D. JUMP, Philadelphia.

To Rockefeller Institute, for a course of instruction, and on
tion of this duty to Roosevelt Hospital for a further c
instruction, from Army Medical School, Capt. JOHN F. McC

Philadelphia; Lieuts. JOSEPH G. FERNBACH, Philadelphia; ROY L. SCOTT, Sayre.

To St. Louis, Washington University, for a course of intensive training in head surgery, from Fort Oglethorpe, Lieut. THOMAS S. HICKS, Braddock; *on completion of this course to report to Camp Greenleaf* for a course of instruction, Lieut. WILLIAM BATES, Philadelphia.

To Walter Reed General Hospital, Takoma Park, D. C., for a special course of instruction in tuberculosis 'examinations, Capt. ELMER G. WEIBEL, Erie; *Lieuts. RALPH E. HENRY,* Erie; HARRISON M. STEWART, Mont Alto; ABRAHAM TRASOFF, Philadelphia.

To his home and returned to the inactive list of the Medical Reserve Corps, *from Fort Oglethorpe, Lieuts. JOHN S.* ANDERSON, Greensburg; *JOSEPH F. COMERFORD,* Philadelphia.

To his home and *returned to the inactive list of the* Medical Reserve Corps, on account of being physically disqualified for active service, from Fort Oglethorpe, Lieut. LEO DeL. PARRY, Rock Glen; from Walter Reed General Hospital, Lieut. FLOYD D. LOHR, Derry; from Fort Benjamin Harrison, Lieut. JOSEPH S. MURRIN, Carbondale.

Porto Rico

To Camp Stuart, Newport News, Va., *for duty, from Fort Oglethorpe,* Lieut. WILLIAM R. GALBREATH, San Juan.

Rhode Island

To Camp MacArthur, Waco, Texas, for duty in connection with orthopedic examinations in the division and base hospital, Lieut. JOSEPH E. RAIA, Providence.

To Walter Reed General Hospital, for a special course of instruction in tuberculosis examinations, Lieut. NORMAN B. COLE, Providence.

South Carolina

To Camp Kelly, San Antonio, Texas, *for duty, from Fort Oglethorpe,* Lieut. THOMAS C. GALLOWAY, Columbia.

To Camp Lee, Petersburg, Va., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, *from Fort Oglethorpe,* Lieut. THOMAS O. WALKER, Greer.

To Camp Meade, Annapolis Junction, Md., for temporary duty in the base hospital, from Camp Greenleaf, Lieut. HERBERT HARRIS, Andlison.

To Camp Pike, Little Rock, Ark., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Oglethorpe, Lieut. JAMES M. OLIVER, Orangeburg.

To Mineola, L. I., N. Y., for duty, from Fort Benjamin Harrison, Lieut. CHARLES C. FISHBURNE, Scotia.

Tennessee

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Fort Riley, Capt. JAMES H. SMITH, Trimble; Lieut. GRANVILLE I. WALKER, Gillases Mills.

To Camp Kelly, San Antonio, Texas, *for duty,* from Fort Oglethorpe, Lieut. GUY McC. REESER, Jr., Church Hill.

To Camp Pike, Little Rock, Ark., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Oglethorpe, Lieut. MAURICE L. CONNELL, Ridgetop.

To Camp Upton, Yaphank, L. I., N. Y., for duty, from Army Medical School, Lieuts. GEORGE F. AYCOCK, Nashville; MANTON L. SHELBY, Woodlawn.

To Canal Zone, to report in person to the commanding general, Panama Department, for duty, from Fort Benjamin Harrison, Lieut. WILLIAM E. BOYCE, Flat Woods.

To Fort Bayaho, N. M., for duty, Lieut. FRANK B. BREWER, Nashville.

To New York City, Bellevue Hospital, for a course of instruction on fractures and on completion of this duty to proceed to Fort Niagara, N. Y., for temporary duty, from Camp Mills, Lieut. WILLIAM R. SEARS, Lebanon.

To St. Louis, Washington University, for a course of intensive training in head surgery, from Fort Oglethorpe, Lieut. DORSEY T. GOULD, Lawrenceburg.

Honorably discharged from the Medical Reserve Corps, from Camp Pike, Lieut. WILLIAM G. BUNDRANT, Lawrenceburg.

Texas

To Army Medical School, Washington, D. C., for a course of instruction, from Brownsville, Texas, Lieut. LUCIUS L. HANDLY, Houston.

To Camp Cody, Deming, N. M., Thirty-Fourth Division, Lieut. JOSEPH V. DOZIER, Menard.

To Camp Hancock, Augusta, Ga., for temporary duty in the base hospital, from Fort Oglethorpe, Capt. WALLACE RALSTON, Houston.

To Camp Jackson, Columbia, S. C., for duty, from Army Medical School, Lieut. WILLIAM L. STARNES, San Antonio.

To Camp MacArthur, Waco, Texas, for duty, Lieut. MARION M. BROWN, Mexia.

To Camp Sevier, Greenville, S. C., to report in person to the com- ing general, Thirtieth Division, for active duty, Lieut. EDWIN EVES, Galveston.

p Travis, Fort Sam Houston, Texas, for duty, Lieuts. D F. CLARK, Fentress; GEORGE W. DOUGLAS, ALLEN D. WAGES, Waco.

horpe, Field Hospital Co. No. 3, for duty, from Camp ESSE C. McKEAN, Lometa.

., for *transportation* to France and on arrival in commanding general, American Expeditionary Forces, for duty as roentgenologist, from School of Military Roentgenology, Kansas City, Lieut. DAVIS SPANGLER, Sherman.

To San Antonio, Texas, Robert E. Green Memorial Hospital, for duty as a medical member *of examining board,* and as recruiting officer, from Kelly Field, Lieut. EDWARD E. COLLINS, Fremont.

To report to the commanding general, Southern Department, for assignment to duty, Capt. ROBERT H. McLEOD, Palestine; Lieuts. THOMAS R. MOREHEAD, *Ben Franklin; GEORGE* W. GRISWOLD, Cisco; EVERETT O. ARNOLD, Corpus Christi; JOSEPH KOPECKY, El Campo; RICHARD A. WILSON, Marfa; ALBERT A. JACKSON, Mexia.

To his home and honorably discharged from the Medical Reserve Corps on account of being physically disqualified for active service, *from Fort Oglethorpe,* Lieuts. CHARLES W. WILLIAMS, Bronte; CLARENCE L. McCLELLAND, Frawell.

Utah

To Camp Travis, Fort Sam Houston, Texas, for duty in the camp and in the base hospital and for the purpose of examining and consulting in such orthopedic cases as the commanding general of the camp *may direct,* Lieut. DAVID K. ALLEN, Salt Lake City.

Vermont

To Camp Grant, Rockford, Ill., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, *from Fort Benjamin* Harrison, Lieut. GEORGE L. BATES, Morrisville.

To New York City, Cornell Medical College, for a course of instruction in military roentgenology, from Fort Benjamin Harrison, Lieut. RAY B. THOMAS, Enosburg.

Virginia

To Camp Greenleaf, Fort Oglethorpe, for a course of instruction, from *School of Plastic and Oral Surgery,* Washington University, St. Louis, Lieut. DORSEY C. TYLER, Richmond.

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty from Fort Oglethorpe, Lieut. HORACE T. HAWKINS, Richmond.

To Camp Kelly, San Antonio, Texas, for duty, from Fort Oglethorpe, Lieut. FRANK A. FARMER, Roanoke.

To Camp Lee, Petersburg, Va., for duty, Lieut. GROVER B. GILL, Tangier; *for duty with the auxiliary remount station, from Camp Lee,* Lieut. WILLIAM P. MERCHAUT, Manassas.

To Camp Meade, Annapolis Junction, Seventy-Ninth Division, for duty, from Fort Oglethorpe, Lieut. JAMES S. BURGER, Hopewell.

To Camp Pike, Little Rock, Ark., for duty as a member of a board for the special examination of the command for tuberculosis, from Camp Joseph E. Johnston, Lieut. HORACE T. HAWKINS, *Richmond.*

To Fort Oglethorpe, for a course of instruction, Lieut. GEORGE V. LITCHFIELD, Abington.

To Newport News, Va., for duty at the Port of Embarkation, Lieut. LONSDALE J. ROPER, Portsmouth.

To Staunton, Va., for the purpose of examining applicants for appointments in the Medical Reserve Corps, and on completion of this duty to return to his proper station, from Richmond, Major JOHN G. NELSON, Richmond; JOSEPH T. McKINNEY, Richmond.

To Walter Reed General Hospital, Takoma Park, D. C., for a special course of instruction *in tuberculosis examination,* Lieut. THOMAS N. DAVIS, Lynchburg.

To Washington, D. C., and report in person to the *Surgeon-General* of the Army for temporary duty in *his office, from Fort Randolph, C. Z.,* Lieut. EDGAR A. BOCOCK, *Richmond; to Army Medical School, for* a course of instruction, Lieut. HARVEY R. LIVESAY.

Washington

To Camp Lewis, American Lake, Washington, for duty in the base hospital, to be relieved of his present duties, Capt. ERNEST C. WHEELER, Tacoma.

To Fort Mackenzie, Wyo., for duty from Camp Dodge, Capt. JOHN B. ROBERTSON, Tacoma.

West Virginia

To Army Medical School, Washington, D. C., for a course of instruction, Lieuts. ARTHUR N. HENSON, LAWRENCE A. PETTY, Charleston.

To Walter Reed General Hospital, Takoma Park, D. C., for a special course *of instruction* in tuberculosis examinations, Capts. GEORGE H. BARKSDALE, JOHN W. MOORE, Charleston; Lieut. DAVID P. SCOTT, Ashland.

To his home and the inactive list of the Medical Reserve Corps on account of being physically disqualified for active service, from Fort Oglethorpe, Lieut. ROBERT K. BUFORD, Princeton.

Wisconsin

To Camp Custer, Battle Creek, Mich., Twenty-Fifth *Division, for duty,* Lieut. WILLIAM C. HANSON, *Racine.*

To Camp Jackson, Columbia, S. C., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Oglethorpe, Lieut. LEON H. FLANCHER, Milwaukee.

To Fort Bliss, Texas, for temporary duty, from Fort Riley, Lieut. ADDISON J. PROVOST, Oshkosh.

To Fort Oglethorpe, for a course of instruction, Lieut. HERMAN A. HEISS, Madison.

To New York City, Cornell Medical College, for a course of instruction in military roentgenology, from Fort Oglethorpe, Lieut. HARRY B. PODLASKY, Milwaukee.

To his home and the inactive list of the Medical Reserve Corps, from Washington University, St. Louis, Capt. GUSTAF R. EGELUND, Sturgeon Bay; from Camp Doniphan, Lieut. GEORGE G. RUHLAND, Milwaukee.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

Personal.—Dr. Nolton N. Ashley, chief of the staff of the Oakland Emergency Hospital, has resigned, and has been succeeded by Dr. Charles H. Mackey.——Drs. Henry G. Brainerd, Charles L. Allen, Thomas J. Orbison and Edward H. Williams, all of Los Angeles, are the medical members of the board of trustees of the Psychopathic Association of California, elected at its annual meeting in Los Angeles, October 22.

Anthrax.—During August and September, according to the *Monthly Bulletin* of the state board of health there were eight human cases of anthrax in the state as reported to the board, and the state veterinarian has called attention to outbreaks among animals in Yolo, San Joaquin and Stanislaus counties and in remote sections of the San Joaquin and Sacramento valleys. In Yolo for a period the water in irrigating ditches was ordered shut off to prevent the possible spread of the disease by that means. Warnings have been given in regard to the handling of sick stock and the skinning of dead animals.

COLORADO

Personal.—Dr. Raynor E. Holmes, Canon City, has purchased the Goodloe Hospital, with a capacity of twenty beds, and will conduct it as a private hospital.—Drs. Wilbur T. Little and Hart Goodloe have entered on their military duties at Fort Sill, Okla., and Fort Riley, Kan., respectively.——Dr. Frederick A. Jackson, Salida, has been appointed physician and deputy coroner of Chaffee County, during the absence of Dr. Charles S. Phalen.——Dr. George B. Gilmore has been appointed assistant health officer for West Colorado Springs.

DELAWARE

Personal.—Dr. William P. Orr, Lewes, has been placed in command of the Marine Hospital at Lewes, succeeding Dr. George G. Hart, transferred.——Dr. John W. Mullin, Wilmington, has been appointed chief of the medical staff of the Delaware Hospital.

Typhoid Fever.—October 26, there were twenty-nine cases of typhoid fever in Wilmington which are known to have originated outside of that city. In addition, there are twenty cases which have been traced to one source in Wilmington. The supply of drinking water of the city is reported to be sanitary.

ILLINOIS

Personal.—Dr. Edward A. Glasgow was elected president of the First National Bank of Mulberry Grove, November 5.——Dr. Edgar P. Cook, Mendota, has been appointed chairman of the cooperative committee to promote the antituberculosis campaign of the State Council of Defense.

Assignments to Health Officers.—The state director of health, Dr. C. St. Clair Drake, Springfield, announces the following assignments:

Dr. Clarence W. East, Evanston, relieved as medical officer for Camp Grant Health District, and detailed to investigate poliomyelitis in Cook County, and afterward to report for special assignment.

Dr. Arthur Pearman, Rockford, medical health officer to Camp Grant Health District, Rockford.

Dr. Alexander F. Stewart, Oneida, district health officer for the Western Health District, with headquarters at Galesburg.

Dr. John A. Kappelman, Evanston, relieved as medical health officer of Great Lakes-Fort Sheridan Health District excepting special assignment relating to water supply and sewerage disposal problems in North Chicago and Waukegan, and garbage disposal at Lake Bluff and Lake Forest, and detailed as health officer of the Northeast Health District, with headquarters at Chicago.

Dr. John A. Robison, Chicago, medical health officer of Great Lakes-Fort Sheridan Health District, with temporary headquarters at Lake Forest.

Dr. Charles E. Crawford, Rockford, medical health officer of the Northwest Health District excepting temporarily the Camp Grant District, with headquarters at Rockford.

Dr. Edward M. Irwin, Belleville, medical health officer for the Scott Field Health District, including the towns of Shiloh Valley and Belleville, in St. Clair County.

Dr. Charles S. Nelson, Springfield, medical health officer of the North Central Health District, with headquarters at Springfield.

Dr. Elbert L. Damron, Effingham, district health officer for the South Central Health District, with headquarters at Effingham.

Dr. John A. M. Gibbs, Unity, medical health officer for the Southern Health District, succeeding Dr. Isaac A. Foster, New Haven.

Chicago

Children's Hospital Profits by Rummage Sale.—As a result of the four days' White Elephant Sale, held in the old Calumet Club Building, November 7 to 10, $25,369 was raised for the Children's Memorial Hospital.

Personal.—Dr. Daniel N. Eisendrath read a paper on "Why Do We Have Recurrence of Symptoms After Operations on the Biliary Tract?" at the annual meeting of the Wisconsin State Medical Society, held in Milwaukee, October 3, and also read a paper on the same subject at the annual meeting of the Southern Illinois Medical Association, held at Murphysboro, November 1.

INDIANA

Tuberculosis Hospital Site.—The Madison County Council has appropriated $10,000 for the purchase of the site for a county tuberculosis sanatorium. A farm of 92 acres near Anderson has been selected for this purpose.

Endorse Wynn's Candidacy.—The Indianapolis Medical Society, October 27, adopted a resolution endorsing the candidacy of Dr. Frank B. Wynn for a member of the board of school commissioners, and paying high tribute to the ability and attainments of Dr. Wynn.

Personal.—Dr. Henry Jameson, Indianapolis, fuel administrator for Marion County, is the first director whose appointment has been formally recorded by the state administrator.——Major Orange G. Pfaff, Indianapolis, will not be able to accompany Base Hospital Unit No. 32, on account of an injury to his knee.

IOWA

Honor to Rosenow.—At a gathering of representative citizens of Davenport, November 9, honor was rendered to Dr. E. C. Rosenow, in appreciation of his assistance during the recent epidemic of infantile paralysis in Davenport. An inscribed scroll stating the appreciation of his work, signed by the mayor and representatives of civic, social and medical organizations, was presented to Dr. Rosenow.

KENTUCKY

Personal.—Dr. Thomas F. Cleaver, Lebanon, sustained painful injuries when an engine ran into his automobile on a grade crossing, October 19.——Dr. John W. Gilbert, Lawrenceburg, while burning charcoal in a cistern, was overcome by the gas, and managed to get out of the cistern, but fell, sustaining painful wounds of the forehead.

MAINE

Health Department Reorganized.—The old state board of health, which was created in 1885, has been superseded by the state department of health, which was created by an act passed by the seventy-eighth legislature. Dr. Leverett D. Bristol has been appointed commissioner of health, and the state has been divided into health districts, each in charge of a district health officer.

Health Council.—The governor has nominated the following as the new Maine health council: John J. Ryan, Lewiston, probation officer; Eugene A. Cloutier, Lewiston, associate probation officer; Mrs. George F. French, Portland; Drs. Joseph E. Odiorne, North Whitefield; Robert J. Aley, Orono; Hiram W. Ricker, Poland; Sylvester J. Beach, Augusta, and Joseph B. Drummond, Portland.

MASSACHUSETTS

Personal.—Dr. Joseph A. Smith, police surgeon of Worcester, has resigned to enter the army service.——Physicians of Haverhill visted Georgetown, October 22, to pay their respects to Dr. Richmond B. Root, who celebrated the fiftieth anniversary of his entrance into the practice of medicine on that day.

Orthopedic Hospital for Boston.—The Order of Elks has made an offer to the city council of Boston to erect, for the federal government, an orthopedic hospital to cost $250,000, on the site of the old Parker Hill reservoir, provided the city will sell the site for $40,000. This is expected to be the first reconstruction hospital in the United States for crippled soldiers and sailors.

MICHIGAN

Tuberculosis Foes Meet.—At the annual meeting of the Michigan Anti-Tuberculosis Association, held in Battle Creek, Dr. William De Kleinie, Flint, was elected president, Drs. John H. Kellogg, Battle Creek, and Christopher G. Parnall, Jackson, vice presidents, and Dr. Henry J. Hartz, Detroit, secretary.

Personal.—Dr. William F. English, Saginaw, a member of the state board of health, will be stationed permanently at Battle Creek to assist the military authorities and the state board of health in the campaign to protect the health and morals of the soldiers at Camp Custer.——The University of Michigan has accepted the resignation of Dr. Claudius B. Kinyon, Ann Arbor; for twenty years professor of obstetrics and gynecology in the Homeopathic Medical School, and has appointed Dr. Theron G. Yeomans, St. Joseph, his successor.

Antituberculosis Notes.—Muskegon, Ottawa and Allegan counties are considering the proposition to build and operate a cooperative tuberculosis sanatorium.——At the meeting of the Michigan Anti-Tuberculosis Society, October 30, it was recommended that the state establish sanatoriums for men rejected from the National Army on account of tuberculosis who could be restored to health.——It is proposed to erect a joint tuberculosis sanatorium, to cost about $100,000, for the use of the six counties of Oakland, St. Clair, Livingston, Macomb, Washtenaw and Lapeer.——Members of the Delta County Board of Supervisors have approved the establishment of a joint tuberculosis society with Menominee, Dickinson and Iron counties.

MINNESOTA

Smallpox at Hamline.—There are now five cases of smallpox at Hamline University, Minneapolis. Practically all the students have been vaccinated.

Faculty and War Work.—Fifteen men and two women of the University of Minnesota faculty have been granted leave of absence by the board of regents to engage in war work for the government.

Navy Hospital School Opened.—October 29, the Navy Hospital Corps Training School of the University of Minnesota was formally opened, with an initial attendance of 100 Hospital Corps men from the Navy. The staff is supplied by the University of Minnesota Medical School.

Personal.—Dr. Jacob H. Stewart, St. Paul, was found unconscious on Summitt Avenue, St. Paul, November 1. He had apparently suffered a slight concussion of the brain.——Dean T. Frankforter of the College of Chemistry of the University of Minnesota was relieved of his administrative duties at his own request, October 25, and reduced to the rank of professor.——Drs. Clarence E. Lum, Duluth, and Walter Courtney, Brainerd, were severely injured by falling through a trap door at a hunting lodge in Ottertail County, October 25.——Dr. Walter R. Ramsey, St. Paul, will head a medical mission to France in January. Dr. Ramsey will take the place of Dr. Julius P. Sedgwick of the university, who is now in France organizing the work among children in the fighting zone.

MISSOURI

Tuberculosis Ward Opened.—The entire north wing on the fourth floor of the Kansas City General Hospital, which was formerly occupied as nurses' headquarters, is being remodeled, and will be used as a tuberculosis ward, accommodating about sixty-five patients.

Personal.—Dr. George P. Pipkin, Kansas City, who has been in Colorado for the past five months in search of health, has returned greatly improved.——Dr. Louis E. Newman, St. Louis, who had five ribs fractured in a collision between his automobile and a coal wagon, is reported to be convalescent.

Medical Inspection of Schoolchildren.—While medical inspection of the schoolchildren of Kansas City has been suspended by the municipal authorities for lack of funds, a public spirited citizen, who desires to remain incognito, has agreed to pay the expenses of the work for three months. Five physicians, five dentists and ten nurses will form the staff of inspectors and begin work at once under the supervision of the Hospital and Health Board.

Society Inaugurates Movement for Combining Laboratories of State Board of Health and State University.—At a recent meeting of the Boone County Medical Society, to which the members of Audrain, Gallaway, Cole, Cooper, Howard and Randolph County Medical Societies had been invited, resolutions were adopted in which were set forth the advantages of free laboratory work being done by the state university. It was proposed that the people of Missouri be made acquainted with the beneficial results of such a procedure, and that the next legislature be urgently requested to make the necessary appropriation for rendering the resolution effective.

First Class in Oral and Plastic Surgery Completes Course.—The first class of students from the Officers' Medical Reserve Corps ordered to take the course in oral and plastic surgery in the special school established at Washington University Medical School by the Surgeon-General of the Army has completed its course, the members, numbering thirty-seven, returning to their respective posts. The second contingent has reported for the course which began, November 5. There are thirty-five men in this class, of which twenty-seven are surgeons and eight are dentists. This course differs from the first in that it offers, in addition to oral and plastic surgery, surgery of the cranium and brain. Dr. Robert T. Frank, New York, is acting as military director.

Must Clean Up Vice Conditions.—Kansas City must clean up vice conditions at once or be quarantined against army camps is the edict of United States government officials. Mr. Henry F. Bart, in charge of the law enforcement department of the War Department, recently visited Kansas City and found conditions so demoralizing for the soldiers who visit the city from nearby camps that he ordered the immediate closing of all immoral houses, prohibiting women from soliciting on the street, and keeping all liquor away from soldiers. While the saloons have generally obeyed the law to refuse liquor to soldiers, the rooming houses and some hotels have permitted drinks to be served to soldiers in private rooms. The police department and the prosecuting attorney have promised to wipe out these vicious influences.

NEW HAMPSHIRE

Students Must Have Physical Examination.—The trustees of the New Hampshire College, Durham, have decided that hereafter every student on entering college must pass a physical examination.

Personal.—The residence of Capt. Charles A. Lamson, M. R. C., U. S. Army, at New London, was destroyed by fire, October 2.——Dr. Patrick J. McLaughlin, Nashua, has been appointed physician of Hillsboro County, succeeding Dr. Charles E. Congdon, who is in war service.

NEW JERSEY

Hospital Burns.—The Trenton Municipal Hospital, containing fifty-five patients, was burned, November 6. All the inmates escaped or were carried to places of safety, some of them being taken from the second floor by the staff of nurses, who for a times worked single handed in the mission of rescue. The loss is placed at $40,000.

Tri-County Physicians Elect Officers.—At the annual meeting of the Tri-County Medical Society, which includes, Cumberland, Salem and Gloucester counties, held at Millville, October 30, the following officers were elected: president, Dr. Harry A. Stout, Wenonah; vice presidents, Dr. Joseph N. Husted, Woodstown, and John H. Moore, Bridgeton, and secretary-treasurer, Dr. George E. Reading, Woodbury.

NEW YORK

Personal.—Dr. and Mrs. William N. Miller, Croton-on-Hudson, were seriously injured in a collision between their automobile and another car at Harmon-on-Hudson.——Dr. Marcus E. Babcock, Bath, was struck by an automobile, October 28, and received a severe wound of the scalp.——Dr. George F. Reusch, Franklinville, has accepted a position with the mining company at Virginia, Minn.

Commission Discusses Care of Insane.—The Hospital Development Commission, which was created by the last legislature to form a plan for the systematic enlargement of state institutions for the insane and feebleminded, recently conducted a hearing at the New York Academy of Medicine. The commission has presented the results of an investigation of the institutions for the care of the insane in this state and in Massachusetts, as well as in other states. The immediate establishment of psychopathic hospitals, especially in New York City, was urged. These hospitals should be employed simply as clearing houses to determine which persons might be restored by a short term of treatment and which should be sent to the state hospitals. The opinion was expressed that the care of the insane is properly a state function and should be kept so, as municipal governments were too likely to shift.

New York City

Woman Head of Parole Board.—Dr. Katherine B. Davis has been appointed chairman of the parole board by Mayor Mitchell. The term of office runs for ten years, with a salary of $7,500 a year.

Anniversary Address.—The anniversary address of the New York Academy of Medicine was delivered, November 15, by Dr. Henry Fairfield Osborn, L.L.D., president of the National Museum of National History, on "The Origin and Nature of Life."

Jamaica Hospital Opens Laboratory.—The Jamaica Hospital, Borough of Queens, announces that it has just completed the equipment of a roentgen-ray laboratory and is ready to render prompt and efficient service to the physicians of Queens who refer cases for roentgen-ray examination.

New York's Quota of Doctors for War Service.—The New York Chapter of the Red Cross has issued a statement asserting that when the base hospital units now awaiting a call to duty are in service, New York City will have sent 200 physicians and surgeons and more than 500 Red Cross nurses for war hospital work. The Presbyterian, Roosevelt, New York Post-Graduate, and the New York hospitals are already in service abroad. The other units, Bellevue, Mount Sinai, Herman and Metropolitan hospitals, have long been in readiness.

Medical Services Discuss War Problems.—Under the auspices of the New York State Committee, Medical Section of the Council of National Defense, a rally was held on the evening of November 9 at the Waldorf-Astoria, at which the heads of the medical services of the British and American governments discussed the probable requirements of the medical service. Dr. George D. Stewart presided at the meeting, and the principal addresses were made by Col. Sir Berkeley Moynihan, Major George W. Crile, Cleveland, and Dr. Franklin H. Martin, Chicago.

City Food Cabinet Organizes.—City Market Commissioner Henry Moschowitz has organized a cabinet of advisers drawn from the various city departments to consider the city's new undertaking of buying and selling food and fuel to the people. Work has been assigned to various city departments. The health department has as its task to make a study of wholesale and retail prices of essential commodities and the relation of these prices to the factors of distribution of trade. The Department of Public Charities is to study the relation of present prices to income. The members of this cabinet are to hold a conference each week to discuss ways and means of conducting their campaign to control, if possible, the high cost of living.

PENNSYLVANIA

Hospital Endowed.—The George F. Geisinger Memorial Hospital, Danville, built at a cost of $600,000 has now been endowed by Mrs. Geisinger for $1,000,000. A Scranton trust company has been named as trustee, the local board of trustees having been asked to resign.

Personal.—Dr. W. Rowland Davies, Scranton, has been elected president of the Craftmen's Club.——Dr. Adolph Koenig, Pittsburgh, October 1, was reappointed a member of the State Bureau of Medical Education and Licensure.——Dr. Adam L. Kotz, Easton, has resigned from the staff of St. Luke's Hospital, South Bethlehem, and has been appointed pathologist for the Easton Hospital.——Dr. Henry L. Orth, for twenty-seven years superintendent of the State Lunatic Hospital of Harrisburg, has resigned his position, to take effect as soon as his successor can be appointed.——Dr. Harvey L. Gerberich, Lebanon, was operated on in the Good Samaritan Hospital, in that city, and is reported to be convalescent.——Dr. Daniel Frederick, Ashley, who was operated on for appendicitis in St. Francis' Hospital, Pittsburgh, November 7, is reported to be doing well.

Philadelphia

Ambulance for Jefferson Base Hospital.—The West Philadelphia Auxiliary No. 4 of the American Red Cross presented a new field hospital ambulance to Base Hospital No. 38 of the Jefferson Medical College Hospital, November 7.

Reception to Moynihan and Crile.—At the stated meeting of the Club of Physicians in Philadelphia, November 7, the scientific business of the meeting was omitted on account of the reception to Sir Berkeley Moyihan, R. A. M. C., and Major George W. Crile, M. R. C., U. S. Army.

Plant Oak in Honor of White.—October 26, Arbor Day, in the presence of a notable group of representatives of business, professional and city life of Philadelphia, a red oak tree was planted in Rittenhouse Square in honor of the late Dr. William White, surgeon, author and nature lover.

Personal.—Dr. W. Wayne Babcock has been appointed chief surgeon of the base hospital at Fort McPherson, Atlanta, Ga.——Dr. Clarence P. Franklin, adjutant of the Allentown training camp, has been promoted from major to Lieutenant-Colonel.——Dr. Richard M. Pearce, professor of research medicine, University of Pennsylvania, has been made director of the recently established bureau of medical service of foreign commissions of the American Red Cross.——Dr. Edward A. Schumann has been elected lecturer on obstetrics in the Jefferson Medical College.——Dr. Mary D. Ridgeway, Germantown, was seriously burned, October 17, by the explosion of a lamp.——Dr. Hubley R. Owen has been given an indefinite leave of absence as chief of police surgeons of Philadelphia. Dr. Owen is an officer of the Medical Reserve Corps, and is connected with the Jefferson Hospital Unit.

School of Oral Surgery Opens.—November 10, Provost Smith of the University of Pennsylvania announced that a new course for army dentists and surgeons had been established at the Evans Dental Institute, Fortieth and Spruce streets, under the direction of Dr. Charles K. Turner, dean of the dental school.——Thirty-two advanced students, who are not only practicing physicians and surgeons, but who are at present actively engaged as officers of the Medical and Dental Corps of the Army, have been detailed to Philadelphia for the school. The course will continue during the period of the war. While the University Dental School has been designated as the headquarters of the course, some of the branches and laboratory work are being done at the Jefferson Medical College, Jefferson Hospital, Baugh Institute of Anatomy of the Jefferson College, Medico-Chirurgical Hospital, Philadelphia General and the Pennsylvania.——The commissioned officers sent to the school from the United States Dental Corps are: surgeons: Major E. J. Johnson, Capts. R. E. Balch, Carl Eggers, A. P. Roope, R. C. Wiggon; Lieuts. Ivan R. Burket, Bernard Friedlaender, S. D. Gleeton, C. W. Hoffman, R. M. Kleckner, F. Koontz, A. J. McCracken, W. H. Maley, J. W. Means, Samuel Oast, Jr., Howard Schriver and E. M. Vaughan. Dental surgeons: Lieuts. Vincent E. D. Bragg, R. S. Catheron, H. O. Cowles, F. H. Cushman, H. T. Hinrici, W. H. Hynard, C. J. Meyer, G. C. Parry, S. D. Ruggles, W. J. Scruten, I. E. Smith, J. D. Stone, C. W. Swing, C. E. Waters, J. B. Williams and P. J. Wumkes.

CANADA

Officers Wounded.—The following officers of the Canadian Army Medical Corps were recently reported wounded: Lieut.-Col. Anson S. Donaldson, Calgary, Alta.; Capts. James E. Bloomer, Moose Jaw, Sask.; J. Harold Jones, Vancouver, B. C.; Richard W. Kenny, Winnipeg, Manit.; Robert Mackenzie, Vancouver, B. C., and James Moore, Listowel, Ont.

Medicated Wines.—The Ontario License Board is instituting an active campaign against the "medicated wines." According to an amendment to the Patent Medicine Law recently passed at Ottawa, the board can now proceed with prosecutions under the Ontario Temperance Act, which carries a maximum penalty of $1,000 fine. It is understood that the board will proceed direct against the manufacturers and not the druggists.

Notification of Venereal Diseases.—The Board of Health of Toronto, through Dr. Charles J. C. O. Hastings, will ask the Ontario Board of Health to have all persons with venereal disease placed under quarantine, as is the case with all other communicable diseases. They will also seek legislation to provide for any one suspected of being infected undergoing an examination, and, if found diseased, quarantined, the board of health to have the final decision in case of dispute.

Canadian War Cripples.—Douglas C. McMurtrie in *The Survey*, Nov. 3, 1917, gives an account of the work done by the Military Hospitals Commission and allied organizations and officials in Canada for the training of soldiers crippled in the war. This work is now well organized in Canada and decided progress is being made. McMurtrie describes particularly the work in Alberta in the Ogden Military Convalescent Hospital, near Calgary, and also at Edmonton, where well equipped institutions are carrying on this work.

Fee-Splitting in Toronto.—Dr. D. J. Gibbs-Wishart, president of the Academy of Medicine, Toronto, took occasion to rap fee-splitting in his presidential address before that body:

"It is a frankly dishonest transaction which stamps as a fraud the practitioner who demands his pound of flesh." He stated he was credibly informed that men in Toronto had endeavored to solicit the operative work of practitioners on the frankly stated basis of a fifty-fifty division of the fee. He, even—specialist in nose and throat—had been personally solicited by a general practitioner to state what percentage he might expect to receive on referred cases.

Scarcity of Doctors in Canada.—Dr. John W. Edwards, ex-member of parliament, Cataraqui, Ont., says that medical students should be exempted from the military service. Medical officers point out that the public does not realize the scarcity of doctors in Canada at the present time. It is understood that the government intends issuing authority to the exemption boards to allow medical students to continue their studies, in view of the fact that the War Office has sent back to Canada to finish their course second and third-year men of Queen's, Toronto and other medical colleges, who were serving in various capacities overseas.

Cancer in Canada.—Dr. Charles J. C. O. Hasting, M. O. H., Toronto, estimates there are between 7,500 and 8,000 deaths from cancer in Canada every year, and the majority of these, 80 to 90 per cent., are of persons over 40 years of age. Three quarters of those lives might be saved by early diagnosis and proper treatment. He sounds a note of warning to the public and says that as there is no known medical cure for cancer there is therefore no worse criminal than the man who advertises to sell a cure for cancer (or consumption), as he is robbing the victims of their only chance for recovery—early eradication, radium or roentgen-ray treatment.

Hospital News.—Some time ago the Hamilton (Ont.) City Council appropriated $60,000 to $70,000 for remodeling the administration building of the Hamilton City Hospital, but had held back the money. Last week a conference took place between the hospital governors and the board of control, but they failed to come to an agreement as to the absolute necessity of the alterations at the present time.——The Military Hospitals Commission of Canada has decided on the immediate erection of a convalescent home for returned soldiers at London, Ont. Provision will be made for 300 beds, and arrangements will be made later on to expand to a capacity of 600 beds. The Ontario government will bear a substantial proportion of the cost of construction.

Medical Inspection of Schools in Toronto.—The system of medical inspection of schoolchildren now in operation in Toronto provides for inspection in the separate (R. C.) schools as well as the public schools, and for all the year round, instead of for ten months of the year, as formerly. Dr. Marchant B. Whyte, who was superintendent of the Isolation Hospital, has been placed in charge of the work under Dr. Charles J. C. O. Hastings, the former being director of medical services. Under the arrangement the health physicians employed in the schools are required to carry out the duties of medical officers of health, each being assigned a district—the city having been divided into several health districts, five in number, and under this arrangement, likewise, the public school nurses have been incorporated into the general public health nursing system of the city.

Personal.—Capt. John M. Adams, C. A. M. C., who has been overseas for two years, has been recalled to Ottawa for special duty in the department of documents.——Major Andrew Macphail has arrived in Montreal from overseas.——An escaped prisoner from Germany has brought word of the Hon. Dr. Beland, formerly postmaster-general of Canada. He is in good health, but has lived regularly in prison since June last. He is allowed out twice weekly under guard. He gives his medical services freely among the British prisoners and maintains a kitchen at his own expense, and is a very efficient cook. Dr. Beland was not told of the death of his wife until three days thereafter, apparently so that he would not have a good excuse to ask to go to her funeral.——Dr. William H. Hattie, Halifax, N. S., was elected president of the Canadian Public Health Association at its recent meeting.——Dr. Frederick S. Minns, who was acting medical inspector in chief of the board of education in Toronto when it was transferred to the Department of Public Health, has resigned.——Drs. Norman E. McKay, M. O. H., Halifax, N. S., and Napoleon Boucher, M. O. H., Montreal, Que., have been members of a special committee under the food controller, inquiring into the milk supply of Canada.——Capts. Charles A. Temple and William J. Clark and Major W. Harley Smith, Toronto, who have been in England for two years, have returned.——Lieut.-Cols. Irving H. Cameron, Toronto, Clarence L. Starr and John D. Courtnay, Ottawa; Major Donald McGillivray, Toronto, and Dr. Robert B. Wilson, roentgen-ray expert, Montreal, have started from Halifax to make an official visit of inspection of all the military hospitals of Canada from coast to coast.——Capt. H. A. Simkins of the Spadina Military Hospital, Toronto, has been transferred to England.——Dr. J. Gordon Gallie, Toronto, has resumed practice after service abroad.——Capt. Andrew S. Moorhead, Toronto, is now doing surgery in France under Lieut.-Col. Herbert A. Bruce, Toronto.——Capt. Roland W. Young, Oshawa, Whitby Military Hospital, has been transferred to the Toronto Military Base Hospital.——Major Andrew Macphail, Montreal, editor of the *Canadian Medical Association Journal,* has gone to visit his old home in Prince Edward Island.

GENERAL

Correction.—At the Physicians' Club banquet to Dr. Billings, described last week, it was stated that Governor Lowden was introduced by Dr. A. M. Corwin and that Dr. Arthur O'Neil acted as toastmaster. Dr. A. Augustus O'Neil acted as toastmaster and introduced Governor Lowden.

Correction.—In publishing the list of chiefs of the medical service in the cantonment hospitals in The Journal for Oct. 20, 1917, Major William S. Bigelow of Boston was given as the chief of the service of Camp Cody, Deming, N. M. This should be Major Edward B. Bigelow of Worcester, Mass.

Paul Jones Club Officers.—At the annual meeting of the Paul Jones Club, Sons of the American Revolution, held at Portsmouth, N. H., November 7, Dr. Henry I. Durgin, South Eliot, Me., was elected president, and Drs. William O. Junkins, Eugene B. Eastman, Portsmouth, and Fred S. Cowle, Portsmouth, were elected members of the board of managers.

Ohio Valley Physicians Elect Officers.—At the nineteenth annual meeting of the Ohio Valley Medical Association, held in Evansville, November 7, the following officers were elected: president, Dr. J. Rawson Pennington, Chicago; vice presidents, Drs. Walter F. Boggess, Louisville, Ky.; Meyer L. Heidingsfeld, Cincinnati, and Virgil H. Moon, Indianapolis, and secretary-treasurer, Dr. Benjamin L. W. Floyd, Evansville (reelected).

Eye, Ear and Throat Men Meet.—At the twenty-sixth annual meeting of the American Academy of Ophthalmology and Oto-Laryngology, held in Pittsburgh, October 29 and 30, the following officers were elected: president, Major Allen Greenwood, M. R. C., U. S. Army, Boston; vice presidents, Drs. Virginius Dabney, Washington, D. C.; Frank R. Spencer, Boulder, Colo., and W. Likely Simpson, Memphis, Tenn.; secretary, Dr. Lee Masten Francis, Buffalo, and treasurer, Dr. Secord H. Large, Cleveland.

Bequests and Donations.—The following bequests and donations have recently been announced:

University of Pennsylvania, $600,000 from the executors of the will of Eckley B. Coxe; of which $500,000 is to be used for the Unversity Museum, and $100,000 for the pay of professors and keepers.

St. Luke's Hospital, Bethlehem, a gift of a ward, costing $90,000, from the Bethlehem Steel Company, October 18.

The Board of School Commissioners, Indianapolis, his medical laboratory for the use of physicians and others needing information, and the Presbyterian Board of Missions, his instrumental and surgical equipment by the will of Dr. John Kolmer.

St. Bartholomew's Clinic, New York, $10,000; the Morristown (N. J.) Memorial Hospital, $100,000; Germantown Dispensary and Hospital, $100,000; St. John's Guild, New York, $50,000, and Babies Hospital and St. Mary's Free Hospital for Children, New York, each $100,000 by the will of Mrs. Mary Warden Harkness.

St. John's Guild and Hebrew Orphan Asylum, New York, each $500, by the will of Joseph Morningstar.

Augustana College, Rock Island, Ill., his library, by the will of Dr. Carl Oscar Bernhardi, Rock Island.

FOREIGN

De Quervain Succeeds Kocher.—F. de Quervain, now professor of surgery at the University of Basle, has accepted a call to the medical faculty of Berne as successor to Kocher.

Jadassohn Called to Succeed Neisser.—J. Jadassohn, who has been professor of dermatology at the University of Bern since in the nineties, and is said to have been practically the founder of dermatology in Switzerland, has now gone to Breslau to take the chair left vacant by the death of his old teacher, Neisser, some months ago. He was born not far from Breslau, in 1863.

Beretta Prize for Milan Physicians.—Dr. A. Beretta of Milan bequeathed to the city of Milan a fund of $40,000, the income of which is to be awarded as a biennial prize for the best work on clinical medicine or pathologic anatomy done during the two years by some physician who has resided in the province of Milan for at least five years, but has not been in practice longer than twelve years. The money prize is to be accompanied with a gold medal.

Memorial to Gutierrez of Madrid.—A statue of Gutierrez, Count of San Diego, was recently unveiled on the grounds of the Rubio Institute at Madrid, three years after the death of this leader in gynecology in Spain. Among the speakers, Cortezo, president of the Academia de Medicina and editor of the *Siglo Medico*; classed Gutierrez with Letamendi and Cajal as Spain's great modern trio. He remarked further that the fame of the practitioner is ephemeral, even the best beloved, but a monument prolongs it and thus makes up in part for the inadequate compensation which the fees for his visits represent in return for the persevering devotion and self abnegation which the practice of medicine signifies.

Deaths in the Profession Abroad.—**Sir David Caldwell McVail**, Glasgow, Scotland; L.F.P.S. (Glas.), 1866; L.R.C.P. (Edin.), 1866; M. B. University of Glasgow, 1876; aged 72; formerly professor of clinical medicine in St. Mungo's College, Glasgow; physician to the Glasgow Royal Infirmary; Crown member for Scotland of the General Medical Council; a member of the Court of Glasgow University, since 1891; a prolific writer on the mechanism of respiration and diseases of the respiratory organs; died at his home in Glasgow, November 4.——**E. Huet**, one of the pioneers in electrology in France, aged 57. He had charge of the electrotherapeutic department at the Salpêtrière, and the account of his work and honors is practically the history of electrodiagnosis during the last twenty-five years.——Lieut.-Col. **F. E. Viana**, professor of surgery at the Medico-Military School at Mexico City.——**P. Malerba**, research worker and professor of physiologic chemistry at the University of Naples, aged 68.——**D. Sangrador** of Madrid, killed in a railroad accident while on his way to the recent medical congress at Valladolid.——**J. Rambousek**, professor of factory hygiene at the University of Prague, and an authoritative writer on industrial poisonings.

LONDON LETTER

London, Oct. 23, 1917.

The War

MINISTRY OF HEALTH POSTPONED

The prime minister, Mr. Lloyd George, received a deputation from the joint committee of approved societies and the conference of the Amalgamated Society of Industrial Assurance, representing about 12,000,000 insured persons. The objects of the deputation were: 1. The early establishment of a ministry of health on lines satisfactory to national health insurance organizations. 2. The early passage into law of a bill for the simplification of insurance administration. 3. The financial readjustment of national health insurance by a further grant. The premier said that the exchequer was not in a position in the middle of a great war to make the same promises in regard to insurance or any other social projects that it could very well make in days of peace. Our energies and our thoughts had been taken away from projects for the amelioration of the condition of the people to the terrible demands made on us in the defense of our liberties. The drain on our resources was unparalleled, and we were not at the end of the charge on our national wealth. He wished he could predict that we might soon see the end of it, but the task which the nation had taken in hand must be accomplished. Otherwise not merely the power and prestige of this nation were broken, but its future was pretty hopeless. We must husband our resources and incur no obligations beyond the strictest and sternest necessities of the hour, and when demands were put forward for improvements here and there, his answer would be, "Concentrate on victory." For the moment every claim on the exchequer must be considered in the light of the terrible possibilities of the war; and when it was over, in a freer and happier atmosphere we could begin to rebuild, reconstruct and regenerate. As to the bill for a ministry of health, Mr. Lloyd George said he was the last person to contend that it was not an urgent measure. We had to repair the ravages of the war. Stricter attention to the health of the community and to the saving of life by that means was one of the most efficient and surest methods of attaining that end. The damage would be great, even if the war was arrested now. The losses would be beyond count; and we should have to devote resolution, courage and readiness to find an agreement which this war had disclosed rather than seek for a point of controversy—we should have to apply the whole of that new spirit to proposals of this kind. Otherwise we should never repair within our day, nor within the day of our children, the ravages of this great war; but if we did concentrate in that spirit we should not merely clear the débris of war, we should not merely restore, but we should build something stronger, grander and on a firmer foundation than we had ever witnessed. He was certain that in one form or another we must drastically reform the administration of our health laws. There were conditions that were incompatible with health. It was a scandal that a nation which had shown such capacity for meeting great emergencies should have lethargically tolerated conditions of that kind. It was regrettable that people capable of the sort of explosive energy which this country had put forth in two or three years should have allowed slums, misery, and wretchedness and squalor to drain the land. We wanted people who enjoyed liberty to be fit to defend it, and that was one of the problems of the future.

THE MEDICAL TREATMENT OF INVALIDED SOLDIERS

The Army Council has issued revised instructions relating to the continued treatment and training of soldiers discharged from the army on medical grounds. Two categories of patients are contemplated in these instructions: (1) soldiers who at the actual time of their discharge require further treatment, and (2) soldiers who at some time after their discharge are found to require further treatment. This category is confined to men suffering from ailments arising from wounds or injury sustained during military service. As a general rule, the patients to whom these instructions apply will be those suitable for treatment as outpatients in hospitals, because army regulations in force already provide that so long as inpatient treatment is required, soldiers shall not be discharged from hospital. It is foreseen, however, that in certain special cases, as in tuberculosis or paraplegia, further inpatient treatment may be necessary. The further treatment thus to be afforded will be available at military Red Cross hospitals through agency of the local war pensions committees. In order that the local committees may efficiently carry out the duties devolving on them, they are to be furnished with cards, recording all relevant information relating to men about to be invalided out of the army. These cards will indicate whether or not further treatment is needed, and, if so, where it may be obtained. The committees will also be empowered to appoint hospital visitors, to visit and confer with the hospital authorities—or the medical authorities at command depots and camps—responsible for men about to be invalided out. In addition to treatment, special courses of technical training may in many cases be desirable. Patients for treatment in the second of the two categories described above must themselves make application in the first instance to the local committees. After ascertaining the eligibility of the applicant, the committee will send him to a military hospital for examination. The hospital will furnish a card, as described above, giving authority for the further treatment of the applicant.

FOOD ECONOMY

Sir Arthur Yapp, president of the Y. M. C. A., has undertaken the direction of a new food economy campaign, which is necessary in view of the dearth of many of the principal foods. Next month a flood of oratory is to be let loose throughout the country. A committee of experts in the food controller's department is working out a scientifically graded scheme of rationing. Taking into consideration the available supplies of food and the needs of our allies, they are seeking to find out exactly what each man, woman and child ought to have according to age and occupation and other relevant circumstances. As soon as they have reached decisions, the scale of consumption which they recommend will be made known. The rationing will be for all essential foods. It will be our task to see that the scale is observed. In addition it will be necessary to ask people occasionally to make a definite sacrifice and for a time to go without some particular thing altogether. Sir Arthur Yapp is endeavoring to establish a league or committee of national safety to bring home to the people that our national safety and the allied cause generally depend on the extent to which we economize in food consumption. The first members of the league will be asked to do everything possible to educate others. They will be asked to pledge themselves to live within the scale of rations laid down and to avoid waste. It is hoped to evolve a scheme to keep in touch with members so that once a month points for use in the campaign can be sent to them.

THE NATIONAL HEALTH IN 1916

The report for 1916 of Sir Arthur Newsholme, medical officer of the Local Government Board, has just been issued.

A review of the national health of the present time is rendered exceptionally difficult by the disturbances of population due to the war and to the gigantic new industries which have been created. So far as ordinary infectious diseases are concerned, with the exception of measles, the record of 1916 has remained favorable. There have been no cases of cholera. The tuberculosis work of local authorities during the year has been further restricted by the war. One of the most urgent of after-war problems will be to secure the early resumption and extension of this work, particularly in regard to the provision of greatly increased hospital accommodation for persons with advanced cases of consumption. The reduction in the number of births emphasizes the importance of saving child life and of improving the health of all survivors. Sir Arthur Newsholme considers that there is no insuperable difficulty in reducing the total deaths in childhood to half their present number. During 1916 the rate of infant mortality was the lowest on record. Owing to a large proportion of health officers having been released for military service, an increasing number of women physicians have been appointed for public health work, the depletion of the services having become serious. Unless considerable readjustments are made, more officers cannot be spared for the army consistently with the public safety. The staffs of inspectors of nuisances had also been greatly depleted, and many untrained men and women are performing duties formerly in the charge of trained men. It is not surprising that under these conditions, outbreaks of infectious diseases in a few instances have not been promptly controlled, and that, especially in regard to smallpox, enhanced risks have been, and continue to be, incurred owing to the inexperience of the local officers. A large part of the time of those medical inspectors who are not on military duty is taken up in emergency work arising out of the foregoing considerations. Health officers and sanitary inspectors remaining on civil duty have done admirable work in assisting less experienced temporary colleagues in other districts. In a not inconsiderable number of instances, one officer has acted for several areas in addition to his own.

PARIS LETTER

Paris, Oct. 18, 1917.

The War

RESULTS OF ANTITYPHOID AND ANTIPARATYPHOID VACCINATION OF THE SOLDIERS DURING THE WAR

An interesting communication on this subject was read by Prof. H. Vincent at a recent meeting of the Académie des sciences. He said that in the present war, during the winter of 1914-1915, a very severe, rapidly progressing epidemic had made its appearance. Because of the exigencies of war, preventive vaccination could not be made effective at the front during that period. A less serious recurrence of paratyphoid took place during the fall of 1915. Since then the armies at the front have enjoyed an unusually good state of health. Typhoid and paratyphoid have existed only in a very slight degree, in spite of the presence of the aggravating conditions of exceptional severity brought about by a violent and prolonged war; by the mobilization of large numbers of troops, such as have never been observed before in any war; by the constant arrival of new troops; by the close contact of many men, thus increasing the danger of direct and indirect contact through the agency of the sick, as well as by carriers; and by the flies and the continual contamination of the soil.

The wholesale vaccination of the troops at the front was commenced in February, 1915. Since the beginning of the war the laboratory of the army has sent to the front 5,513,073 doses of vaccine. Before the war and since the year 1911, 20,000 soldiers have been vaccinated against typhoid and paratyphoid A and B with mixed or triple vaccine; 200,000 others have been vaccinated against typhoid only. At the present time, thanks to this active immunization, these diseases can be considered as having been practically vanquished. From 6.12 in November, 1914, 7.24 in December, 1914, and 7 in January, 1915, per thousand men, the number of cases dropped rather suddenly to 4.3, 2.49 and 1.6. In August and September, 1915, the morbidity (paratyphoid predominant) rose to 2.47 and 2.65, but since then it has diminished more and more. During February, 1916, the percentage of cases per thousand was less than 1, and this percentage has been maintained. In 1917, the monthly rate was: 0.1, 0.048, 0.025, 0.028, 0.036, 0.064, 0.068 and 0.063 per thousand. As for the mortality, from the fastigium of the 1914-1915 epidemic (November to March), the curve descended almost vertically to the present time. The vaccination by two injections is responsible for this remarkable recession in the number of cases and deaths, and the mortality is now so low that one is obliged to evaluate on the basis of 100,000. Even when we reduce to that scale, the percentage is often fractional. In 1917, it has been successively 0.6, 0.5, 0.5, 0.1, 0.3, 0.6, 0.4 and 0.3 per hundred thousand.

The value of this specific prophylactic measure cannot, in fact, be determined precisely. If the morbidity and mortality of these typhoid diseases as observed from November, 1914, to January, 1915, had been maintained, one could estimate, on the basis of 4 or 5 million soldiers having been sent to the front during the thirty-eight months of the war, that the number of cases of typhoid would have exceeded a million, with 145,000 deaths. This is not taking account of the aggravating influences obtaining during the war and the unusual weather conditions of the fall months of the three years during which this war has been waged; consequently, this preventive vaccination may be credited with having been of immense economic value to the army as well as to France as a whole. Taking for comparison the health of the French army before the war, as set forth in the official statistics for the year 1911 (the last published), it will be seen that at present the number of cases of typhoid fever occurring in the armies at the front are more than seven times less numerous, and that the number of deaths is 8.5 times less numerous than during peace times.

SHELL FRAGMENT IN THE LEFT AURICLE

At a recent session of the Académie de médecine, Dr. Le Fort reported an observation made on a wounded soldier from whose left auricle he extracted a piece of shell the size of a pea. Of the six walls of the left auricle, only one is accessible, the postero-inferior, the narrow space bounded by the pulmonary veins, the auricular appendage and the auriculoventricular vessels. The shell fragment had been fixed with the fingers in a fold of the auricular wall; two loops of thread were passed at the base of the fold. Then the auricle was incised with a bistoury, the fragment extracted and the threads tightened. Complete hemostasis was effected. The patient died on the fourth day. The necropsy showed that the sutures had held perfectly, that there had been no hemorrhage in the pericardium, and no blood clots were found in the heart. The patient was 45 years of age, and he had recovered from a pulmonary affection shortly before he was wounded. The intrapleural space was entirely obliterated. The heart was small and fatty, with fatty perinephritis of the right kidney, slight hydronephrosis of the left, etc. Dr. Le Fort has thus far performed seven operations for the extraction of foreign bodies from the heart, and four pericardial extractions with one death and ten recoveries.

Repression of Public Drunkenness

October 1, a law, dealing with the repression of public drunkenness and the supervision of saloons, was promulgated. This law imposes on persons found in a manifest state of drunkenness on the streets a fine of from 1 to 5 francs for the first offense. The second offense is punishable by from one to three days' imprisonment, and a third offense, when occurring within the first twelve months, is punishable by imprisonment for from six days to one month or a fine of from 16 to 300 francs. Any person who is convicted twice may be deprived of his electoral and civic rights for two years. The law fixes an analogous penalty for such dealers as shall serve liquors to minors (under 18), and dealers who are fined more than once will be liable to closure of their establishments for a year or more. The sale of alcoholic liquors on credit is interdicted. The law forbids the employment of females under 18 years of age in retail liquor establishments, unless they are members of the proprietor's family. Dealers who encourage debauchery shall be imprisoned for from six days to six months, and shall forfeit their political rights for five years. Their establishments shall be closed permanently.

Treatment of War Fractures

At one of the recent sessions of the Société de chirurgie of Paris, Dr. Heitz-Boyer, chief of the surgical clinic of the Faculté de médecine de Paris, described the organization and method of procedure of the Fracture Center at Châlons-sur-Marne, of which he is director. This center was established for the following reasons: (1) to assure patients, whose condition often demands many months of hospital residence, of continued care under conditions which must obtain if the surgeon is to assume full responsibility; (2) to provide that the care is always given in a center of this kind properly equipped from the point of view of the necessary material organization, apparatus and procedure; (3) to institute such care as early as possible, endeavoring to keep in mind the military as well as the surgical needs; (4) to assure the evacuation of these patients at the earliest possible time to the next unit formation within the same surgical group.

From the application of these principles has been born the special surgical "bone group" in each army, consisting of three grades or divisions, comprising the principal formations situated in the rear of the lines where operations are performed. Farther back in the interior are two branches, the first known as the second hospital, where the discharged patients, or those who are out of danger, are hospitalized until such time as the wounds have healed and the bones have united; and a second, known as the division of physiotherapy where the convalescents and those who are to be discharged from the army on account of disability receive such care as will restore to them as much function as their injury permits. Therefore, the treatment of the wounded is always under the surveillance and direction of a single responsible head. All records are carefully kept and interchanged, so that complete observations may be made, and the value of different procedures employed by the single units may be compared. Finally, from a material point of view, each group can be so well equipped that all kinds of work can be done, the equipment sufficing to take care of the wounded in the different stages of their illness. The apparatus accompanies the wounded into the different relays of the entire course. The results obtained by Heitz-Boyer in his center, where he has treated, since April, nearly 700 cases of fracture, more than 100 of these involving the thigh, have been so good that the value of this team-work method is fully attested.

New School for the Reeducation of Disabled Soldiers

The president of the republic recently visited a new school for the vocational reeducation of the mutilated, founded by the Union of Foreign Colonies in France in the Ferme de Champagne at Juvisy-sur-Orge for the benefit of war victims. The new school was founded exclusively for the benefit of mutilated or wounded agriculturists. It includes sections for general training, horticulture, nurseries, agricultural mechanics and automobile traction. Since the opening of the school, 550 patients have been admitted. A large number have been returned to their homes, properly benefited; for the others, lucrative positions have been obtained by the union. The principal workers in establishing these foundations, in which cooperated American, English, Dutch, Norwegian, Russian and other committees, constituting the Union of Foreign Colonies, are: Mm. Ascher, L.-V. Benet, L. Kone and B.-J. Shoninger, vice presidents.

The Bread Card and the Composition of Bread

Commencing October 15, a rigorous bread card régime was instituted. The maximum quantity of bread allowed for the weekly consumption of each individual was fixed on the following basis: for persons from 1 to 6 years of age, 300 gm. per day; more than 6 years of age, 500 gm. In addition, a flour ration of 50 gm. per day is provided for infants under 3 years of age; on the other hand, a supplementary ration, not exceeding 200 gm. per day, is allowed for all persons who shall make satisfactory declaration to the effect that such addition is indispensable to their nourishment. A second supplementary ration, not to exceed 200 gm., is allowed to persons engaged in hard work, and whose food consists largely of bread.

The composition of bread provoked an interesting discussion in a recent session of the Académie de médecine. The following resolutions were adopted: (1) the miller must grind only grain which is sound, free from foreign bodies and altered grains, that is, good and not damaged grain; (2) the percentage of the boltage cannot be uniform; it necessarily must vary with the quality of the grain, as determined by the weight of a hectoliter (2¾ bushels); (3) acting on the directions so far received, it seems that the present regulations in vogue have brought about the distribution of bread which has in a certain number of cases caused some illness; (4) the method of making bread with lime water, besides having many advantages, does not seem to cause any inconvenience from the health standpoint; (5) in regard to substitutes for cereals, it is very desirable to use rice in the French diet as much as is possible. Rice flour, as well as barley, rye, buckwheat and corn flour can be added to wheat flour for bread making. If well prepared, these flours do not give rise to any untoward effects.

Association News

THE CHICAGO SESSION

Local Committee on Arrangements for the Chicago Session of the American Medical Association

The following constitute the Local Committee on Arrangements for the session of the American Medical Association to be held in Chicago, June 10-14, 1918: Drs. Ludvig Hektoen, chairman; Charles J. Whalen, secretary; W. A. Pusey, John V. Fowler, Hugh T. Patrick, M. L. Harris, Charles F. Humiston, J. B. Herrick and Frank Billings.

Marriages

Lieut. Philip Emerson Thomas, Jr., M. R. C., U. S. Army, Camp Beauregard, Alexandria, La., to Miss Louise Walls of Holly Grove, Ark., October 28.

Samuel Lutz Zurmehly, M.D., Rushsylvania, Ohio, to Miss Ethel Long of Kingston, Ohio, at Chillicothe, Ohio, October 26.

Major Arthur Wells Elting, M. R. C., U. S. Army, Albany, N. Y., to Mrs. Francis W. Rawle of Bryn Mawr, Pa., October 25.

Walter Scott Patterson, M.D., Butler, Pa., to Miss Gertrude Connors of Penn Township, at Butler, October 24.

John Thomas Sullivan, M.D., Milwaukee, Wis., to Miss Lona Chapman of North Fond du Lac, Wis., October 27.

August Edward Witzel, M.D., Utica, N. Y., to Miss Helen Marguerite Van Alstyne of Ilion, N. Y., October 24.

Robert Morton Manson, M.D., San Leandro, Calif., to Miss Madeline Strohl of Oakland, Calif., October 31.

John C. Reed, M.D., Duquesne, Pa., to Miss Lillian Bennethum of Harrisburg, Pa., October 24.

Peter Burrell Mulligan, M.D., Hazleton, Pa., to Miss Helen Leonard of Camden, N. J., recently.

Audley Durand Stewart, M.D., Rochester, N. Y., to Miss Jane Walker Russell of Chicago, recently.

Walter Martin Skallerup, M.D., Walker, Iowa, to Miss Belle Forrester Black of Chicago, June 27.

Pattison Albert Waters, M.D., Monte Vista, Colo., to Miss Ethel Keen of Denver, October 7.

Deaths

Newell Bly Burns, M.D., North Wilmington, Mass.; Harvard Medical School, 1909; aged 35; a Fellow of the American Medical Association, and a member of the National Association for the Study and Prevention of Tuberculosis and the American Sanatorium Association; assistant superintendent and physician to the North Reading (Mass.) State Sanatorium for Tuberculosis; instructor in pulmonary diseases in Tuft Medical School, Boston; died in the sanatorium, October 27, from rheumatic endocarditis.

Harris Gray Sherman, M.D., Cleveland; College of Physicians and Surgeons in the City of New York, 1880; aged 61; a Fellow of the American Medical Association, and a member of the American Academy of Ophthalmology and Oto-Laryngology, and American Ophthalmological Society; a specialist on diseases of the eye; first medical inspector of schools of Cleveland; at one time president of the Cleveland Chamber of Commerce; died in Charity Hospital, Cleveland, October 30, from pneumonia.

Francis L. Springer, M.D., Newport, Del.; University of Pennsylvania, Philadelphia, 1877; aged 63; formerly a Fellow of the American Medical Association; a member of the Delaware State Medical Society, and its president in 1912; for nine years trustee of the poor, and once a member of the visiting staff of the State Hospital, Farnhurst; for several terms physician of New Castle County; died suddenly at his home, October 24, from cerebral hemorrhage.

Lieut. George Walter H. Conrad, M. R. C., U. S. Army, Philadelphia; Hahnemann Medical College, Philadelphia, 1913; aged 29; a specialist on diseases of the eye, ear, nose and throat; who had been on duty at Fort Benjamin Harrison, Ind., until August 27, when he was transferred to the aeronautical school at Austin, Texas; died in the Army Base Hospital, San Antonio, Texas, October 30, from abscess of the brain.

John C. Webster, M.D., Lafayette, Ind.; Rush Medical College, 1870; aged 76; a Fellow of the American Medical Association; formerly president of the Indiana State Board of Medical Registration and Examination; consulting physician to St. Elizabeth's Hospital, Lafayette; died, November 11, from the effects of carbolic acid accidentally self-administered, in mistake for liquid petrolatum.

Jefferson A. Davis, M.D., Kansas City, Kan.; Medico-Chirurgical College of Kansas City, Mo., 1902; aged 54; a Fellow of the American Medical Association; for eight years coroner of Wyandotte County, Kan., and formerly police surgeon of Kansas City, Kan.; died in St. Margaret's Hospital, Kansas City, Mo., October 7, from heart disease.

Andrew Jackson Hall, M.D., Natchez, Miss.; Bellevue Hospital Medical College, 1879; aged 78; formerly a Fellow of the American Medical Association; vice president of the Mississippi State Medical Association in 1892; a member of the staff of the Natchez City Hospital since 1889; a Confederate veteran; died in New Orleans, October 21.

Horace Edward Bunce, Jr., M.D., Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1900; aged 47; formerly a member of the Medical Society of the State of Pennsylvania; a member of the medical staff of the Jones and Laughlin Mills, Pittsburgh; died at his home, October 28, from septicemia.

George L. Saunders, M.D., Columbus, Ohio; Ohio State University, Columbus, 1908; aged 43; a member of the Ohio State Medical Association; formerly a member of the staff of the Ohio Hospital for Epileptics, Gallipolis; died in Grant Hospital, Columbus, October 29, from disease of the intestine.

John Milton Dexter, M.D., New York City; College of Physicians and Surgeons in the City of New York, 1894; aged 49; formerly a member of the Medical Society of the State of New York; was run over and killed by an automobile, near his home, November 1.

Albert Nathan, M.D., Charleston, S. C.; Medical College of the State of South Carolina, Charleston, 1909; aged 31; a member and once secretary of the South Carolina Medical Association; died in Boston, October 22.

Paul S. Morrison, M.D., Bancroft, Kan.; Ensworth Medical College, St. Joseph, 1909; aged 33; for several years a druggist and physician of South St. Joseph, Mo.; died in a hospital in Atchison, Kan., November 2.

A. C. McNutt, M.D., Bucyrus, Ohio; Starling Medical College, Columbus, Ohio, 1856; aged 89; surgeon of the Eleventh Ohio Volunteer Infantry during the Civil War; died at his home, October 16, from uremia.

Abraham L. Lehman, M.D., Philadelphia; Medico-Chirurgical College of Philadelphia, 1899; aged 62; a pioneer of the Coeur d'Alene district; died in the Providence Hospital, Wallace, Idaho, October 21.

William Albert McCallie, M.D., Knoxville, Tenn.; Vanderbilt University, Nashville, Tenn., 1876; aged 65; formerly a member of the Tennessee State Medical Association; died at his home, October 18.

James H. Dobbins, M.D., Bellefonte, Pa.; University of Pennsylvania, Philadelphia, 1849; aged 90; formerly a member of the Medical Society of the State of Pennsylvania; died at his home, recently.

Dennie Daniel Trotter, M.D., Madison, Ga.; Atlanta, Ga., School of Medicine, 1912; aged 28; formerly a member of the Medical Association of Georgia; died in a hospital in Atlanta, October 16.

Decatur H. Burk, M.D., Warner, Okla.; Medical College of Georgia, Augusta, 1889; aged 67; formerly a member of the Oklahoma State Medical Association; died in Muskogee, Okla., October 24.

John Kolmer, M.D., Indianapolis; Jefferson Medical College, 1894; aged 51; a Fellow of the American Medical Association; a well known surgeon of Indianapolis; died at his home, October 21.

John Craig Johnstone, M.D., Lawton, Okla.; St. Louis University, 1912; aged 34; formerly a member of the Oklahoma State Medical Association; died in Blackwell, Okla., October 7, from diabetes.

James M. Bartholow, M.D., Urbana, Ill.; Rush Medical College, 1871; aged 70; a member of the Illinois State Medical Society; a veteran of the Civil War; died at Champaign, Ill., October 8.

James A. Summers, M.D., Johnson City, Tenn.; College of Physicians and Surgeons, Baltimore, 1874; aged 69; died at his home, August 4, from dysentery and laryngeal tuberculosis.

Rudolph Myers, M.D., Huntingdon, Pa.; Bellevue Hospital Medical School, 1863; aged 77; a Fellow of the American Medical Association; died at his home, August 24, from toxic myocarditis.

Edward Johnson, M.D., Columbus, Neb.; Medical School of Maine, Portland, 1883; president of the First National Bank of Columbus; died in the Clarkson Hospital, Omaha, October 27.

Newton C. Davis, M.D., Kingman, Kan.; Homeopathic Hospital College, Cleveland, 1884; aged 61; formerly a member of the Kansas Medical Society; died at his home, about October 25.

Samuel A. Orentreich, M.D., Denver; University of Krakow, Austria, 1890; died in Detroit, October 23, from the effect of poison, self-administered, it is believed, with suicidal intent.

Robert Lee Ray, M.D., Monterey, Tenn.; University of Tennessee, Nashville, 1892; aged 52; a Fellow of the American Medical Association; died in his office, October 29.

Isaac B. Gallup, M.D., Willimantic, Conn.; Philadelphia University of Medicine and Surgery, 1869; aged 72; died at his home, August 2, from carcinoma of the bladder.

Levi A. Horn, M.D., Austin, Pa.; University of Louisville, Ky., 1894; a member of the Medical Society of the State of Pennsylvania; died at his home, about August 15.

Samuel O. Knapp, M.D., Frankfort, Ind.; Medical College of Ohio, Cincinnati, 1884; aged 59; died in Mulberry, Ind., September 20, from chronic interstitial nephritis.

Charles Z. Ellis, M.D., Berkeley, Calif.; California Eclectic Medical College, Los Angeles, 1891; aged 54; died in Berkeley, October 16, from carcinoma of the stomach.

F. N. Sheppard, M.D., Riverside Manor, Md., American College of Medicine, Philadelphia, 1865; aged 78; died at his home, near Crumpton, Md., October 14.

Andrew N. Falkenstein, M.D., Glen Rock, Pa.; College of Physicians and Surgeons, Baltimore, 1887; aged 63; died at his home, October 19, from nephritis.

Henry T. Fullerton, M.D., Kenton, Tenn.; Missouri Medical College, St. Louis, 1866; aged 77; died at his home, September 4, from cerebral hemorrhage.

Charles C. Dalton, M.D., Wiota, Wis.; Bennett Medical College, Chicago, 1903; aged 39; died in Madison, Wis., September 15, from pneumonia.

Thomas C. Van Tries, M.D., Bellefonte, Pa.; University of Pennsylvania, Philadelphia, 1868; aged 38; died in Pittsburgh, August 1, from pneumonia.

John G. Rogers, M.D., Cherrygrove, Tenn.; Vanderbilt University, Nashville, Tenn., 1875; aged 78; died at his home, July 14, from nephritis.

Merriken B. Lukens, Atlanta, Ga. (license, Georgia); a practitioner since 1871; aged 83; died at the home of his niece in Atlanta, October 22.

John R. Bartlett, Burlison, Tenn. (license, Tennesse, 1889); aged 61; a practitioner since 1880; died at his home, July 28, from angina pectoris.

Joseph George Church, M.D., Shenandoah, Pa.; University of Pennsylvania, Philadelphia, 1887; aged 52; died at his home, October 19.

Jesse B. Mitchell, Sneedville, Tenn. (license, Tennessee, 1889); aged 76; died at his home, August 22, from cerebral hemorrhage.

Joseph James Harrison, M.D., Loudon, Tenn.; University of Nashville, Tenn., 1854; aged 83; died at his home, October 25.

Charles Dingee, M.D., Burlington, N. J.; University of Pennsylvania, Philadelphia, 1887; died at his home, October 10.

Joseph Lewandowski, M.D., Boston, Mass.; University of Krakow, Austria, 1894; aged 53; died at his home, October 23.

Oran A. Dean, M.D., South Haven, Mich.; University of Buffalo, 1868; died at his home, October 19.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

IODEOL AND IODAGOL

Report of the Council on Pharmacy and Chemistry

Iodeol and Iodagol (formerly called Iodargol) are products of Viel and Company, Rennes, France, widely advertised in this country by David B. Levy, Incorporated, New York. The claim made for both preparations is that they depend on "colloidal iodin" for their action. They are put up in a number of forms, for instance:

"Iodeol Ampoules each containing 1 c.c. (20 centigrammes colloidal iodin in an oily vehicle)."

"Iodeol External, containing 50 per cent. colloidal iodine."

"Iodagol Ampoules, each containing 2 c.c. (50 centigrammes colloidal iodine in an oily vehicle)."

The claim is, that, the iodin being in the colloidal state, it has the properties of elementary iodin and thus the preparations may be used in concentrations and under conditions which would make the use of free iodin impossible. The products have been extensively and extravagantly advertised for use in a wide range of conditions. Thus Iodeol has been proposed in the treatment of:

"Pulmonary Tuberculosis"
"Laryngeal Tuberculosis,"
"Glandular Tuberculosis"
"Tuberculosis of the Bones"
"Pneumonia, Broncho-pneumonia, and Congestive Conditions"
"Whooping Cough, Influenza, Asthma"
"Typhoid Fever"
"Syphilis"
"Obesity".

Iodagol, which is for external use, has been advised in the treatment of:

"Gonorrhea and its Sequelæ"
"Cystitis"
"Tetanus"
"Wounds complicated by gaseous gangrene"
"Burns"
"Old Suppurations, ulcers, abscesses, etc."
"Articular rheumatism"
"Abscess Alveolar"
"Pyorrhea Alveolaris"
"Stomatitis (Canker-Sores)."

Nearly two years ago the American agents requested the Council to consider Iodeol and Iodagol for admission to New and Nonofficial Remedies. The information submitted in regard to their character and composition was vague and indefinite, the pharmacologic information practically nil and the clinical data as voluminous as it was unconvincing.

On the basis of chemical, pharmacologic, bacteriologic and clinical investigation carried out under the direction of the referee and a study of the submitted evidence, the referee reported:

1. Iodeol and Iodagol do not contain the amount of iodin claimed.

2. The iodin is not present as elementary iodin, but instead the preparations behave similarly to the well-known organic iodin compounds such as iodized fats.

3. The therapeutic claims made for the preparations are exaggerated and unwarranted.

In view of his findings he recommended that Iodeol and Iodagol be declared inadmissible to New and Nonofficial Remedies for conflict with Rules 1 and 2 (misleading statements regarding composition and identification) and Rule 6 (unwarranted therapeutic claims). The Council adopted the recommendation of the referee, directing inclusion of the full report in the annual Council reports after submission to the manufacturer, and recommending publication of an abstract of this report in The Journal.

This report was brought to the attention of the American agent, David B. Levy, Inc., and through them to the French manufacturers, E. Viel and Company. The manufacturers have intimated that they will not file a reply to the report. The firm of David B. Levy, Inc., has decided to sever its connection with these products and to discontinue their sale.

W. A. Puckner, Secretary.

Referee's Report

Iodeol and Iodagol were submitted to the Council nearly two years ago as "electro-colloidal iodine" and with the claim that they produced all the antiseptic and other effects of ordinary iodin without any of its side actions. The referee has done much work on the subject, conducted a large amount of correspondence and has contended with long delays. He feels that the consideration of these products should be brought to a conclusion and accordingly he submits this report of their consideration. The following is a summary of the report, which is appended:

I. Discrepancy in Iodin Percentage.—The examination at the Chemical Laboratory of the American Medical Association, as well as that of the referee, shows that the various samples of Iodeol and Iodagol examined contained a little less than one-half of the total iodin claimed. These facts were reported to the American agent. After a lengthy delay a reply was received which presented a double excuse: (1) that the full amount of iodin had been added, whatever had become of it later; (2) that the claims were made for "colloidal iodin" and that this is not elementary iodin in the colloidal state, but a preparation of iodin containing only 50 per cent. of real iodin. Neither explanation can be taken seriously, as they are obvious quibblings. The referee concludes that the preparations are falsely labeled as to iodin content.

II. Nature of the Iodin Compound in Iodeol and Iodagol.—In the information sent the Council, Iodeol and Iodagol were defined as "A suspension of electro-chemical colloidal iodin in a vehicle of purified oil." Numerous inquiries have failed to elicit more specific information from the manufacturer or his agent. The statement of composition can mean only that the preparations contain free iodin (but in colloidal form) suspended in oil. No evidence to substantiate this claim has been submitted. (There is evidence that the preparations contain colloidal particles, but it does not indicate if this colloidal material is iodin, or a combination of iodin or indeed whether the colloid component contains any iodin.) The recent statements of the agent seem to concede that what they call "electro-colloidal iodin" contains only about 50 per cent. of real iodin, in other words that it is not "colloidal iodin" at all but a mixture or combination of iodin with some other unnamed substance. This, of course, is something very different.

Certain results reported from the American Medical Association's Chemical Laboratory suggest that the so-called "colloidal iodin" of Iodeol may be a combination of iodin with a volatile oil. The investigations of the referee indicate that the iodin exists in a rather resistant form or combination behaving altogether differently from ordinary free iodin, and rather resembling the behavior of iodin substitution products, such as iodized fats or phenols. Briefly, then, the recent admissions of the agents indicate that Iodeol does not contain "colloidal iodin" in a chemical sense, and there are indications that it does contain its iodin in a rather firm (chemical) combination.

III. Chemical Properties of Iodeol.—From a study of different specimens of Iodeol, the referee concludes that fresh specimens contain *no free iodin* and that old ones contain small amounts as a result of decomposition. Iodeol has the solubility characteristics of fats and fat-like compounds. The examination, as a whole, shows that Iodeol contains a peculiar and rather resistant form or combination of iodin. There is nothing in the chemical data that suggests that it could act differently from ordinary iodin compounds, such as iodized fats. It would not act as ordinary iodin.

IV. Pharmacologic Data.—The pharmacologic statements which were submitted were loose and apparently meaningless or misleading. In reply to questions submitted by the referee, the manufacturer finally had some work done and submitted a report by Jean Laumonnier. The referee was unable to confirm some of this work, and as a whole it does not appear materially to elucidate the action of Iodeol. From a consideration of the submitted evidence and as a result of his own work, the referee concludes that Iodeol does not behave like elementary iodin; it does not coagulate proteins and therefore is not irritant. It is presumably absorbed, but quite probably after chemical change; it is changed into iodid and, like organic iodids, is excreted somewhat more slowly than when inorganic iodids are administered, but the difference does not appear important.

V. Antiseptic and Bactericidal Action.—Elementary iodin is considered a fairly powerful agent in these respects. The activity is presumably due to changes in the proteins, etc., of the bacteria, analogous to the effects which produce pain, irritation and necrosis of the tissue cells. Since the latter effect is not produced by Iodeol, it seems highly improbable, if not impossible, that it should act on bacteria like elementary iodin. It is entirely unjustifiable to credit the known antibacterial qualities of ordinary iodin to "colloid" iodin. This misrepresentation is especially prominent in the circular "Notable New Therapeutic Agents," as will be seen, for instance, from the following citations:

> "Iodine has long been universally recognized as an antiseptic of extraordinary potency. Not only is it rapid and certain in its germ-destroying action, but it also possesses an attribute denied many other antiseptic agents, namely, the power to penetrate and impregnate the tissues. Other antiseptics, as is well known, act on the surface epithelium only."
>
> "According to Kinnaman (Journal A. M. A., Aug. 26, 1905), iodine is far superior to bichloride of mercury, a two per cent. solution killing streptococcus pyogenes in two minutes. Iodine does not coagulate albumin, and is very penetrating."

The citations imply that this "colloidal iodin" of Iodeol and Iodagol acts as an antiseptic like ordinary iodin, except that it is claimed to be more efficient by "diffusing" more readily. This is entirely unjustified and misleading. If Iodeol and Iodagol are really antiseptic, they must act by some other mechanism than that through which elementary iodin acts, and such antiseptic action would have to be demonstrated by direct observation and not assumed from the known action of free iodin.

Antiseptic and bactericidal effects are easily estimated by laboratory methods. Yet no evidence on this point appeared to have been available until the Council called for this. Laumonnier then carried out some experiments which were in turn submitted to bacteriologic control. The bacteriologist failed to obtain any results with some of the tests, and considered the other data of little value.

The claim that Iodeol and Iodagol have the antiseptic and bactericidal action of free iodin lacks proof and must be considered unwarranted and misleading in the extreme.

VI. Clinical Trials.—The manufacturers and agents of Iodeol presented many letters from physicians; but few, if any, of these gave evidence of careful, critical, controlled observations. They could not, therefore, be considered as acceptable evidence. The more important claims, letters and published papers, however, were submitted to clinical specialists collaborating with the Council, with the request that they examine these and conduct some clinical trials, if they considered it advisable. The results obtained in these preliminary trials did not appear sufficient to warrant further experimentation.

From a consideration of the evidence presented, the referee concludes that the claims made for Iodeol and Iodagol are unwarranted, exaggerated and misleading. He recommends that Iodeol and Iodagol be declared ineligible for New and Nonofficial Remedies for conflict with Rules 1 and 2 (misleading statements as to composition and identification) and with Rule 6 (unwarranted and misleading therapeutic claims). He further recommends that the Council authorize publication of the preceding summary of the consideration of Iodeol and Iodagol in The Journal and inclusion of the full report in the annual Council reports after submission to the manufacturer.

Garbage Saving at Army Cantonments.—Another practical demonstration of what may be done in the use of garbage is made by the War Department in the Army training camps. The garbage of thirteen of the cantonments will be sold to a contractor for feeding swine, yielding the government an annual price of $446,394. It is estimated that garbage waste from ten to fifteen soldiers will feed one hog, putting onto the animal 1 pound of weight per day. At this rate garbage from thirteen cantonments will produce 18,900,000 pounds of pork yearly. In cases where garbage can not be used for feeding, it will be treated for grease extraction and the tankage ground for stock food or fertilizer. The custom of burning garbage will be abolished altogether. The War Department will receive $240,000 annually for the manure from the horses and mules at Army cantonments.—*Weekly Bulletin.*

Correspondence

"DISORDERED ACTION OF THE HEART" IN BRITISH SOLDIERS

To the Editor:—The report on soldiers returned as cases of "disordered action of the heart" of the Medical Research Committee in England has recently been supplemented by reports of the detailed clinical studies made by members of the staff, contained in *Heart,* **6,** No. 4. The most striking features of these excellent and very detailed studies are, first, the negative conclusions as to the etiology and pathology of this syndrome, and, second, the positive conclusion that graduated exercises cure a large proportion of the patients.

These patients show certain symptoms which to my mind are most significant—breathlessness, and blood pressure and pulse reactions to exercise. The authors state that "the response of the respiratory rate to exercise is a very exaggerated one." Again, "None of our patients are capable of such effort (i. e., amounts of work healthy young adults are capable of) : equal distress and similar pulse rates and systolic pressure are produced by smaller amounts of work or work done more slowly. It is clear that if we chose a given amount of work as a stimulus and apply the stimulus to healthy controls and to our patients, the latter react to the stimulus in an exaggerated fashion. The pulse rate rises much higher than in controls, and the high rate is longer sustained, the blood pressure rises higher, and the raised pressure is longer sustained than in controls: the summit of the blood pressure is not delayed,[1] however: breathlessness, fatigue and palpitation are also much more in evidence."

It seems to me very clear that the patients who presented the foregoing symptoms were suffering from a decreased cardiac reserve power. The fact that so many of them were cured by graduated exercises affords additional and convincing proof. The neurotic symytoms that were often present are not necessarily a sequence of the decreased cardiac reserve power, but probably are simply a concomitant. Very possibly they are caused by the same factors that produced the decrease in cardiac reserve power.

We frequently see these patients with decreased cardiac reserve power in civil life, and graduated exercises cure them. One half of the patients described in the report dated the onset of symptoms a number of years back. Infections of various kinds contracted during service immediately preceded the onset of symptoms in another large group. The cardiac reserve power is always lowered after any infection of moderate severity. Any one who has indulged in exercise too soon after a sojourn in bed with fever can appreciate the truth of this statement. The report takes cognizance of this etiologic factor when it states that "convalescent treatment should be more prolonged than is often the case; a graduated system of retraining seems most desirable."

A group of patients is described who suffered from precordial pain and in many instances hyperesthesia of the chest wall, both accentuated by exercise. The circulatory reactions of this group to exercise are not given except in one instance, probably because it was inadvisable to carry out exercise experiments on account of their effect on the pain. These patients are quite rare in civil life, and their subsequent histories would be of much value.

Objections may be made to my use of the term "cardiac reserve power." The heart's total capacity is made up of two component parts; one, the smaller, comprises the power expended in furnishing the requirements of the metabolism with the body at rest; the other, by far the larger, is utilized when physical work is performed. It is this potentially large component that is called into action by graduated exercises. Any expression which describes a definite function of a bodily organ has a perfectly legitimate use. In this instance the term "cardiac reserve power" denotes a most important function of the heart, the variations of which are matters of personal experience to every man who has gone through a course of physical training. Our inability to measure the heart's reserve power directly is not a reason for ignoring its existence.

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[1] The summit was not delayed because the authors in each experiment stopped increasing the work just as they were about to reach a "delayed rise." The controls were given from ⅓ to 4 times more work than the patients (comparing the maximum amounts given). Had the authors been a little more persistent they would have found the "summit of maximal pressure is delayed" exactly as they found it was in normal patients and with decidedly less work.

When the reserve power is impaired, not from organic disease of the heart, but from any one of numerous causes, there is presented a characteristic clinical picture which to my mind the authors of this report have described quite accurately. The neurotic symptoms from which these patients suffer do not alter the significance of the respiratory and circulatory reactions to work or the significance of the curative effect of graduated exercises.

Theodore B. Barringer, Jr., M.D., New York.

THE CARREL-DAKIN TREATMENT

To the Editor:—I am enclosing a letter which I wrote recently to Dr. William H. Welch in regard to the Carrel method of wound treatment which is at present so actively under discussion. I believe that it presents a point of view that might very well be presented to the profession at this time through the columns of The Journal.

Arthur Dean Bevan, M.D., Chicago.

My Dear Dr. Welch:

I want to write you about a problem which I think is of considerable importance to the Medical Corps at this time and in which I believe you are interested. The problem is that of the Carrel method of wound treatment. I of course have followed in the past two years the surgical literature on this subject with a great deal of interest. At the meeting of the American Surgical Association this spring, Dr. Charles Gibson of New York read a paper on this subject, and at the American Medical Association meeting in June, Dr. William Sherman of Pittsburgh discussed the subject before the surgical section. They both presented the subject in a most enthusiastic way and made very startling claims for the new method. These were so out of keeping with the reports that I have been able to obtain from well qualified surgeons of large experience who had the opportunity of employing it in their military hospital work, and were in such opposition to the generally accepted views of surgical pathology and wound repair, that I have taken the pains to go into the subject pretty fully with an attempt to analyze the facts and arrive at a judicial opinion as to its value.

When I was in Washington during the first two weeks in October, I found that classes of men were being sent to the Carrel Hospital in connection with the Rockefeller Institute in New York for the purpose of taking short courses in the Carrel-Dakin method. On leaving Washington I went to New York and spent one morning at the Carrel Institute and had the opportunity of obtaining a syllabus of the work that is being done in these courses, of seeing their hospital and laboratories, and of witnessing one operation done by Josh Hartwell, not under the supervision of Carrel himself, but of a French army officer who is at the hospital and who has been with Carrel for some time.

I found in discussing personally with several surgeons and from letters and reports which I have had an opportunity of reading from Dr. James Neff, who was in charge of a base hospital of a thousand beds or more for a year on the western front, from a report by Dr. George Crile, from a talk with Dr. James Burry, who has had the treatment tried for a number of months in his accident work in the Illinois Steel Company, from the statements made by Fred Murphy and reports from Joe Blake, and personal communication from Sir Berkeley Moynihan, that they and many surgeons were skeptical as to its practical value. I did not venture, however, to form an opinion of my own until I had the opportunity during the last week of reading Carrel's book and analyzing the problem from this report of his own work. I should like to make clear that the views that I express in this letter are not obtained from any hearsay evidence but from an analysis of Carrel's own views expressed in this book. One of the important parts of modern surgery and one of the things that has made modern surgery possible is that division of the science that is known as surgical pathology. By this I mean a division of pathology that has been specially studied and developed by scientific clinical surgeons. It is only necessary for me to state that the development of modern surgical pathology rests on the work of Lister, of Paget, of Billroth, of such men in this country as Fenger and Senn, and is well presented today by the work done by Lexer and presented in a book which is known as Lexer's "General Surgery." From the time of Lister until now, scientific clinical surgeons have studied the special pathologic problems that were involved in the science and practice of surgery. The problems of wound repair, of infection and the processes by which an organism frees itself from infection, separating the living from the devitalized tissues, the extrusion, digestion and encapsulation of foreign bodies, etc., have been studied with the greatest possible care, and many of these problems worked out as thoroughly both experimentally and clinically as in any field of medical science. Analyzing the Carrel work from the standpoint of what is known of modern scientific surgical pathology, I am forced to the conclusion that his work does not at all meet the requirements essential to a piece of scientific research. I take it for granted that the chemical problems involved have been scientifically handled; but the problems of surgical pathology have been handled in a superficial, incomplete way without the necessary controls, and frankly the conclusion is forced on me that Carrel's part of the work is not scientifically proved and cannot be accepted.

It is evident as one analyzes Carrel's statements that it is a piece of work done by a laboratory man who does not understand the clinical problems involved, who either does not know or ignores many essential facts, and whose conclusions as to the miracle working effects of the Dakin solution in his scheme of treatment have about as little basis in fact as the exaggerated claims that have been made for "ambrine" in the treatment of burns. The trouble is that this problem has not been attacked in the right way. A problem of this kind should be attacked by the joint labor of a number of teams, each one composed of a thoroughly scientific clinical surgeon who is well trained in the science of surgical pathology, in conjunction possibly with such a laboratory worker as Carrel, and with the assistance of competent chemists and bacteriologists. It should be attacked in the most scientific and broadest possible way and with the necessary controls, controls that would enable the investigators to determine, first, the results from the employment of the accepted surgical methods of surgical technic as applied, for instance, to a shell wound of the thigh with compound fracture of the femur, including the earliest possible removal of foreign bodies and of devitalized tissue, the complete excision of the wounds with immediate closure in some cases and with free drainage, moist dressing with sterile water in others, the immobilization of the limb and the best possible general care of the patient, and the results of such wound treatment which could be designated as the control compared with similar cases treated with the employment of various antiseptic solutions, including the Dakin fluid. These experiments to be of value would have to be on a considerable scale. I am personally so thoroughly convinced that wound healing and the freeing of tissues and an organism from infection depends so largely on the life processes in the living cells at the point of injury and infection and the reaction of the sum total of living cells that make up the entire individual, and that the important thing that a surgeon can do is to eliminate noxious influences and place the particular part injured and the entire individual in a condition where this wound repair and elimination of infection can go on uninterfered with as little as possible, that I can see but a limited value in the local employment of antiseptics of any kind on the surface of the infected wound. That any antiseptic has any healing property, that any antiseptic is miracle working in the handling of wounds, is inconceivable.

Looking at the problem in a broad way, if we could express in figures the value of the means at our disposal of treatment of the shell and rifle wounds of this war, certainly much more than 90 per cent. of the sum total of the value of wound treatment would consist of the proper employment of the well known and generally accepted rules of surgical technic. Granted that the remaining 5 or 10 per cent. depended on the proper employment of antiseptic solutions, one may be very sure that the choice of one of a half dozen thoroughly tried out antiseptics, such as boric acid, aluminum acetate, Dakin solution, dichloramin-T, hydrogen peroxid, phenol and iodin, would not make any enormous difference in the sum total of the end-results.

If the above statements are true, it would be a serious mistake for the government medical services to adopt the Carrel treatment as a great and wonder-working improvement in our surgical technic, and to force a complicated, possible augmented content of the toxic substance by the chance use at the same time of several products containing small amounts. Recent analyses by Arbenz[1] which have become available in this country give the following statistics, in terms of oxalic acid per kilogram of air dry spice or ready-to-eat vegetable, respectively: black tea 14.3, cocoa 4.8, pepper 4.5, rhubarb 3.2, spinach 2.9, sorrel 2.7, dry figs 1.2, roasted coffee 0.8, roasted chicory 0.7, raspberries 0.5, beans 0.45, potatoes 0.4, beets 0.3, currants 0.3, pears 0.2, bilberries 0.2, oranges 0.1, asparagus 0.09, cherries (with seeds), tomatoes and wine grapes 0.08, rutabagas 0.07, cauliflower 0.06, onions 0.05, Brussels sprouts 0.04, endive and melons 0.03, mushrooms, peaches, flour, lemons, celery, plums and apples, a trace; corn meal, rice and chestnuts, none. An added value of these figures lies in the fact that since oxalates in the urine are in part derived from the dietary oxalic acid which is resistant to oxidation in the body, in cases of oxaluria, physicians are accustomed to prohibit those foods which contain most oxalic acid and which are eaten in sufficient abundance to make the total amount thus ingested worth considering. Ordinarily the proscribed dietary articles include tea, coffee, cocoa, spinach, rhubarb, sorrel, pepper, beetroot and beans.[2] It should be borne in mind, however, that not all of the excreted oxalate is necessarily associated with a food source. Some of it may have a microbiotic origin in the alimentary tract; and its possible genesis through imperfect metabolism of certain organic acids is still debated.

THE THYMUS AND RICKETS

It is practically useless to turn to the textbooks for helpful information regarding the functions of the thymus. At best one will find a series of unverified conjectures, debated assumptions, or a frank statement of our ignorance of the real purpose of this organ. The natural association of the thymus with early life has led to the conjecture that the gland plays a part in growth; for it becomes smaller and smaller as the rate of growth declines. The latest though by no means the final evidence indicates that former statements implicating a retardation of growth after removal of the thymus cannot be substantiated by experiment. Halnan and Marshall,[3] for example, found that extirpation of the gland from young animals had no effect on their growth, even when the testes were removed simultaneously. Furthermore, in observations on castrated animals they could find no evidence of any compensatory mechanism between the testes and the thymus. In recent years another possibility of decided practical importance has been given some attention through the assertions of continental investigators.[4] They have reported changes after experimental thymusectomy that correspond somewhat closely to those observed in rickets; and thus the question of the relation of the thymus to bony growth and its pathologic manifestations is again brought into prominence.. In an investigation conducted at the Physiology Department of Glasgow University under the new national health insurance medical research scheme, Renton and Robertson[5] have come to a seemingly convincing conclusion in this matter. They have removed the whole thymus successfully in a series of animals which survived long enough to permit adequate observations on their growth in comparison with suitable control animals. Renton and Robertson conclude that thymusectomy of itself does not appear to cause any symptoms. Spontaneous rickets in subjects not operated on gives rise to essentially the same symptoms as the European writers have attributed to removal of the organ; that is, thymusectomy does not make young animals more susceptible to spontaneous rickets, and if they develop it, they do so at the same time and in the same manner as control subjects. The British investigators sum up their findings by the decision that removal of the thymus cannot be held responsible for the onset of rickets or similar bony changes. The alleged pathologic manifestations that have been credited to loss of the thymus have in reality presumably been due to the development of spontaneous rickets in young animals. Thus another promise of discovering a function for this organ has been shattered.

THE RELATIVE VALUE OF FRUIT JUICES

Fruit juices are rapidly finding their way into the daily life of the American people. A few years ago they were limited to the delicacies of the home or to syrups of the soda fountains. Today orange juice and grape juice in particular have found a widespread and growing popularity as agreeable beverages. It is scarcely an exaggeration to say, as does one of the large manufacturing companies in advertising its product, that grape juice has become the national drink. The temperance wave that has swept over this country, taken in conjunction with a vigorous and highly effective advertising campaign on the part of various producers, has helped to secure favor for a refreshing and wholesome beverage. The shortage of sugar at present and the prospect of a necessary restriction in the output of syrups and similar "essentials" of the "soft-drink" industry are likely to increase still further the use of palatable fruit juices. In addition to organic acids which lend a tart flavor to them, these beverages, provided directly by nature, contain a considerable portion of sugars which lend a food value to the product. Thus a glassful of grape juice measuring 7 ounces (210 c.c.) will furnish about 200 calories in the form of sugar; and orange juice is about half as rich in food value. Recently the juice of the loganberry has begun to claim recognition in this category. Analyses[6] made at the Oregon State Agricultural College at Corvallis indicate that this fluid likewise contains from 6 to 8 per cent. of sugar in the acid juice. This lends to it a fuel value of approximately 300 calories to the liter, presumably in the form of available carbohydrates.

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[1] Arbenz, E.: The Quantitative Determination of Oxalic Acid in Foods and Condiments, Chem. Abstracts, 1917, **11**, 2374.

[2] See, for example, Tibbles, W.: Dietetics, or Food in Health and Disease, Philadelphia, 1914, p. 76.

[3] Halnan, E. T., and Marshall, F. W. A.: On the Relation Between the Thymus and the Generative Organs, and the Influence of these Organs on Growth, Proc. Roy. Soc. London (B), 1914, **88**, 68.

[4] Klose and Vogt: Klinik und Biologie der Thymusdrüse, 1910. Matti: Ergebn. d. inn. Med. u. Kinderh., 1913, **10**.

[5] Renton, J. M., and Robertson, Madge E.: Thymusectomy and Its Relationship to Rickets, Jour. Path. and Bacteriol., 1916, **21**, 1.

[6] Daughters, M. R.: The Composition of Loganberry Juice and Pulp, Jour. Indust. and Engin. Chem., 1917, **9**, 1043.

HOOKWORM IN THE MINES OF CHINA

The danger of hookworm infection in mines is well known. Hookworm disease is prevalent in many of the mines of California, China, France, Hungary, Sicily, South America and Spain. Germany, it is said, has spent over $2,500,000 in direct outlay to control hookworm infection in a few of its mines. The disease has been brought under reasonable control in the mines of Belgium and Wales. The investigations of the International Health Board of the Rockefeller Foundation have brought to light a rather unexpected source of perennial reinfection of mines that applies to China in a way scarcely realized in the other countries mentioned. As stated recently in The Journal,[1] the hookworm problem in China presents unique features because of the widespread employment of human excrement as a fertilizer. The disease is thus easily spread into the agricultural districts. It happens that more than a hundred thousand miners, largely recruited from farmers who have worked barefoot in the moist, larva-infected soil, are employed in the mines of Hunan Province alone. The cooperation of the International Health Board has been solicited to provide measures for the control of a difficult situation brought about by this unusual combination of circumstances.

HEAT LOSS AND WATER ECONOMY IN THE BODY

In 1614, Sanctorius wrote, "He only who knows how much and when the body does more or less insensibly perspire will be able to discern when or what is to be added or taken away either for the recovery or preservation of health."[2] Yet the story of this factor of insensible perspiration, the amount of water lost from the body in vaporization, has been most inadequately written. The part played by water in the body is ordinarily overlooked by the clinician except so far as it is expressed in the volume of the urine or in the genesis of an edematous condition. The water which acts as a solvent for the body's waste may thus, perchance, be taken into consideration; but of the water lost from the organism through the respiratory passage and the skin and its rôle in the dissipation of heat from the body, little is known and less is mentioned. The pathway for the loss of heat naturally varies with the temperature of the surrounding air. At a low temperature there is little evaporation of water. Heat is lost in other ways. At an environmental temperature as high as that of the body or exceeding it, there can be no loss of heat by conduction and radiation, so that water evaporation must remove the whole of it. The study of a large number of persons in respiration calorimeters, in this country in particular, has furnished data for estimating some of the factors just referred to.[3] Under an average environmental condition with medium humidity, normal men from 20 to 50 years old excrete on an average 29 gm. (1 ounce) of water an hour — about 700 gm. a day — through the skin and the air passages. In this manner approximately one quarter of the total heat produced is eliminated. Few normal men exhibit variations of more than one-tenth from this figure. According to Soderstrom and Du Bois,[3] the output of water as insensible perspiration is very little affected in disease. When the heat production is increased, the body responds and dissipates the usual percentage of calories in the vaporization of water. When it is necessary to get rid of unusual amounts of heat, the percentage lost in vaporization is increased. Edema seems to have no effect on the water output through the skin; and cardiac and nephritic patients on the whole give figures close to the normal. Just as there is little realization of the extent of the "invisible" water output, so there is too often a failure to appreciate and a tendency to neglect the water content of the intake in the form of seemingly solid food. An illustrative instance has been cited by Soderstrom and Du Bois in the following meal, which might well be given to a nephritic patient: a small dish of farina, a boiled potato, a portion of tomato and lettuce salad, a small dish of junket, and an apple. This ration contains something more than 23 ounces (690 gm.) of water, a quantity sufficient to carry away the heat that leaves in "insensible perspiration" in the ordinary person.

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[1] Problems in the Campaign Against the Hookworm, editorial, The Journal A. M. A., Nov. 10, 1917, p. 1611.

[2] Sanctorius: De medicina statica aphorismi, Venice, 1614, Aphorism III, translated by Lusk, Graham: The Elements of the Science of Nutrition, Philadelphia, 1917, p. 18.

[3] The literature is reviewed by Soderstrom, G. F., and Du Bois, E. F.: Clinical Calorimetry, Twenty-Fifth Paper, The Water Elimination Through Skin and Respiratory Passages in Health and Disease, Arch. Int. Med., May, 1917, p. 931, from which some of the facts quoted are taken.

Health of Food Handlers.—During the examination of the food handlers of New York City, made through the cooperation of the health department and the American Museum of Safety, which included the examination of 44,042 individuals examined at the Occupational Clinic and 33,000 by private physicians, Dr. Louis I. Harris and Mr. Dublin of the Metropolitan Life Insurance Company made an intensive examination of 1,748 food handlers considered typical of the entire number. These included waiters, waitresses, cooks, male and female, other kitchen employees and bakers. In the entire group there were ten cases of active tuberculosis, twelve of suspected and three of arrested tuberculosis. Forty-one persons gave evidence of active or suspected syphilis, of which thirty-seven were among waiters. This group furnished forty-six persons with flatfeet and an equal number with varicose veins. Among the 211 waitresses examined, 65.8 per cent. showed anemia; 62 per cent. had varicose veins, and 17.1 per cent. were reported as suffering from some form of menstrual disorder. Four waitresses were found to have syphilis. The predominating defect among cooks was organic heart disease, there being thirty-two who showed cardiac disease. Of the cooks, 161 had marked disturbance of the digestive functions. Among bakers no tuberculosis or active syphilis was found, but there were thirty-eight cases of chronic bronchial conditions; thirty had organic heart disease and thirty-three, anemia. The study is valuable as demonstrating the importance of the examination of food handlers both from the standpoint of protection of the health of the community and for the opportunity it offers for the study of occupational groups. Another point brought out in the course of this study is the lack of uniformity of standards and methods of classification used by the various workers in the field of industrial hygiene.

Medical Mobilization and the War

MEDICAL OFFICERS IN ACTIVE SERVICE

At the present time there are approximately 12,500 medical men in active service. This includes Medical Corps officers (a little less than 550), medical officers of the National Guard Army, and officers of the Medical Reserve Corps. Up to date approximately 17,900 physicians have been recommended for commission in the Medical Reserve Corps.

AMERICAN WOMEN'S WAR HOSPITALS UNIT

The American Women's Hospitals, of which Dr. Rosalie Slaughter Morton is chairman, was organized by the War Service Committee of the Medical Women's National Association of the United States. Women physicians to the number of 1,200 have registered with the committee, for home and foreign service. Already a number of physicians have been sent abroad to work under the authority of the American National Red Cross with which the American Women's Hospitals works in close cooperation.

MEDICAL OFFICERS' TRAINING CAMP AT FORT BENJAMIN HARRISON TO BE DISCONTINUED

The Medical Officers' Training Camp at Fort Benjamin Harrison is being discontinued and the medical officers transferred from the training camp to other stations. Those who have not yet completed their instruction go to Fort Riley and to Camp Greenleaf at Fort Oglethorpe. Orders have been issued from the Surgeon-General's Office, assigning Colonel Ashburn and several of the other instructors to the Surgeon-General's Office and distributing the remaining instructors among the other training camps. The ambulance and field hospital units undergoing training at the training camp are now testing their ability for sustained marching. Ambulance Companies Nos. 15 and 17, with one field hospital unit and headquarters, all of which are motorized, were ordered to start on November 9 on a seven-day hike to Georgia. Company No. 17 and the headquarters unit will go to Camp Greenleaf, while the other unit will go to Camp Oglethorpe. At the same time, two ambulance companies and two field hospitals, the sixth and fourteenth in each case, provided with mule motive power, received similar instructions.

SALVAGING CLOTHES FROM BATTLEFIELDS AND CAMPS

The English War Office has set up at Dewsbury a department for the purpose of repairing, restoring and utilizing old uniforms and fabrics recovered from the army and navy. All discarded clothing and fabrics of every sort from the battlefields and camps and from the navy are collected, put into bags and shipped to Dewsbury, where the material is sorted into that which can be cleaned, repaired and made usable, and that which must be discarded as rags and put through processes by which it can be made useful as new material. As many as ninety truckloads of this material have been received at this station in a single day. About 350 women are employed as sorters, who pick out the garments that are in condition to be repaired and used again. All articles capable of being restored are sent to a local firm of dyers and cleaners, by whom they are cleaned. Then they are repaired and reissued to the troops or for the use of German prisoners of war. With a high standard of efficiency and a large turnover, the cost for each article, including large repairs, amounts to about 28 cents. In this way, it is said in the report regarding this matter from U. S. Vice Consul Hamilton C. Claiborne, Bradford (*Commerce Reports*, November 5) that $300,000 worth of uniforms have been salved up to the present. In ten months, a total value of material received and disposed of at Dewsbury was over $3,000,000, and the net profit shown on such material at all the stations amounts to a very large sum. Details are given in the report of the amount of material received, the various channels in which it is disposed of, and the uses to which it is put.

CALIFORNIA'S VENEREAL DISEASE PROGRAM

Last summer there was held in San Francisco a conference on prevention of venereal diseases in California, in the interest of soldiers, sailors, and civilians. The program then outlined has been embodied in regulations recently by the state board of health.

The regulations for the prevention of syphilis and gonorrhea require those in attendance on a case of either of these diseases, or a suspected case, to report the case immediately to the local health officer, who in turn will report it to the state board of health. Such reports are to be made by patient's office number or initial only, but the number or initial used must refer definitely to the physician's record of the case. Physicians are expected to furnish, when reporting such cases, any available data that may be useful regarding the sources of infection and must teach the patient how to prevent the spread of the disease, its seriousness, the necessity for prolonged treatment, and must furnish the patient with approved literature on the subject.

Every city, county, and other health officer is directed to use every available means to ascertain the existence of syphilis and gonorrhea within his jurisdiction. He is required to investigate immediately all reported or suspected cases of syphilis in the infective stage, and of gonorrhea, and may inspect, examine, isolate, and disinfect persons, places and things. He is directed to make examinations of persons reasonably suspected of having syphilis in the infective stage or gonorrhea All prostitutes are to be regarded as coming within the suspected class, but the health officer is forbidden from issuing to such women certificates of freedom from venereal disease. The health officer may require the submission of specimens from cases or suspected cases of syphilis or gonorrhea, for the purpose of examination at a state or municipal laboratory, and it is the duty of the attending physician to furnish such specimens when called on to do so.

Local health officers are directed to isolate reasonably suspected persons whenever isolation is necessary to protect the public health. In establishing isolation the health officer must define the limits of the area within which the isolated person and his immediate attendant shall remain. Isolation is not to be terminated until the patient has become noninfective, unless permission is given by the state board of health or the secretary of that board. Cases of gonococcus infection are to be regarded as infective until at least two successive smears taken not less than forty-eight hours apart fail to show gonococci. Cases of syphilis are to be regarded as infective until all lesions of the skin and mucous membrane are completely healed.

Health officers are directed to use every proper means of repressing prostitution, and are to report to the Bureau of Venereal Diseases any unusual prevalence of syphilis or gonorrhea and any unusual local conditions tending to favor the spread of these diseases.

CLINICS AND HOSPITALS

In preparing a list of approved venereal disease clinics and hospitals, the state board of health is aiming to raise the standards of some of the existing dispensaries and hospitals, to encourage the formation of additional public dispensaries where needed, and to assist persons needing institutional treatment to ascertain which institutions have adequate staffs, equipment and standards. Minimum standards are prescribed for dispensaries and for hospitals.

A dispensary, to be approved for the treatment of syphilis, must treat patients suffering from that disease in a separate department or in the department of dermatology, but there is no analogous restriction with respect to dispensaries for the treatment of gonorrhea. In either case, however, the dispensary must be open at least three times a week, day or evening, and the staff must be adequate both in number and in training. Rooms must be well arranged, and every dispensary must have at its disposal beds for isolation and treatment. Laboratory facilities and equipment, with instruments and apparatus, must be provided. In cases of syphilis, microscopic examinations of the suspected initial lesions must be made; Wassermann tests must be performed in the dispensary laboratory or other approved laboratory, and suitable tests and observations shall be made of all patients for a period of not less than two years after the conclusion of adequate treatment. Salvarsan or an accepted equivalent must be administered to all patients suffering from syphilis, unless there are contraindications.

In an approved dispensary for gonorrhea, systematic examination must be made of the discharges, and facilities for urethroscopic and cystoscopic examinations must be provided and be regularly employed by the attending clinicians. Patients must not be discharged as cured until after repeated negative clinical and microscopic examinations. Adequate facilities must be provided for asepsis and antisepsis.

In dispensaries of both kinds adequate records must be kept and an annual report must be made. The clinicians in attendance must themselves devote the amount of time necessary for intelligently informing new patients of the seriousness of their diseases, the necessity for treatment until cured, and the precautions to be taken to prevent the spread of the infection to others, and in addition the dispensary must furnish approved literature on the subjects. A dispensary will not be approved unless a social service department is maintained and adequate measures adopted to procure the regular attendance of patients. If it becomes necessary for any reason to discharge a patient still uncured, the patient must be referred to an approved clinic or to a reputable physician

In general the standards for hospitals for syphilis and gonorrhea are similar to those for dispensaries, but it is specifically provided that patients having venereal diseases must be accepted under the same conditions as other patients.

NEWS OF THE TRAINING CAMPS

At Fort Oglethorpe

Lieutenant McDonald of the Signal Corps has been detailed by the War Department to make a series of moving pictures of the work being done at Camp Greenleaf toward training civilian doctors for military work. If there are any physicians left in this country who imagine that all they have to do in order to serve in the Medical Corps is to change their civilian clothes for a uniform and begin "pushing pills" to the sick soldier, please advise them to see these pictures if they are ever exhibited in their communities. Let them see the workings of an ambulance company, field hospital, regimental or sanitary unit, and then wonder whether they could take charge and run one as smoothly as the trained man. Surprising as it may be to them, doctors are in charge of these outfits, have to run them, and are responsible for all properties connected with them, as well as the training of the enlisted personnel. Moreover, these doctors were untrained civilian surgeons or physicians four months ago.

Majors Van Wart and Owensby have been making a mental survey of the camp for the past three weeks.

Major L. Owen has been relieved from duty at Camp Greenleaf and assigned to the Surgeon-General's Office. The camp has suffered a distinct loss, for Major Owen was one of our most popular and efficient instructors.

Lieutenant-Colonel Talbott, M. C., has been assigned to Greenleaf as camp inspector. Colonel Talbott has had many years' experience in this line of work, and from the amount of interest he has inspired in the student body, we feel safe in predicting "more laurels for his crown."

Major William Pepper, M. R. C., formerly dean of the Medical Department of the University of Pennsylvania, has been made adjutant.

Major Alexander Abbott, M. R. C., has been placed in charge of the school of hygiene recently established at the camp.

Major Walter Weisser has been assigned as provisional director of field hospitals.

Major Bell, formerly connected with the Royal Army Corps, has given a series of lectures on his work in France. Major Bell's ability as a speaker and his unusual opportunities for observing the medical work done in France made his lectures the most interesting in the course.

The Camp Greenleaf Military Society was organized last Friday night. Col. Henry Page, M. C., the commandant, was elected honorary president, and Major Alexander Abbott, president. The aims, objects, etc., of this society are worthy of a more lengthy notice than can be given in this letter—so more about it another time.

Everything is being made ready for taking over the work of the M. O. T. C. at Forts Riley and Benjamin Harrison. The buildings of the R. O. T. C. will be turned over on November 27, which will give accommodations for an additional 5,000 men.

Lieutenant-Colonel Carswell has been relieved from duty with the field hospitals and ordered to San Antonio, Texas. Before leaving, Colonel Carswell was presented with a beautiful wrist-watch by the officers in his command, as a token of their appreciation of his untiring efforts in making the field hospitals one of the best outfits in the country.

Major M. Ashford, M. C., is convalescent from an attack of the grip, and has resumed command of the ambulance companies.

At Fort Benjamin Harrison

CLOSING OF THE CAMP

What is left of the members of the medical officers' training camp at this post will continue their training at Fort Oglethorpe, Ga., as the date for closing the camp here is at hand. The thousands of medical officers who have gone through the training at Fort Benjamin Harrison since the first of June are scattered far and wide. Most of them are still in this country, assigned to base hospitals, field hospitals and regiments. Not a few are in France or at embarkation points.

It is gratifying to the pride of the medical profession for the War Department to admit that the medical branch of the service is prepared to the highest point of efficiency of all. True, it was not necessary to teach us the most obvious part of our work—that of medicine and surgery—as none could receive commissions without first undergoing examination or furnishing evidence of a thorough medical education. However, it has been necessary to begin at the bottom in the education along military lines. Very few had any knowledge whatever of the military side of the life which it bids fair to believe will be theirs for three or four years. This they had to learn, and it has been accomplished in a remarkably short space of time.

GAS DEFENSE

The last of the military lessons, and perhaps one of the most interesting that has been introduced, is that latest flower of Kultur, the gas squad, the Legion of Frightfulness, its insignia a skunk with tail rampant, bar sinister, and the motto "Ad Nauseam."

Insignia of the Legion of Frightfulness.

Three instructors, a trio of frightfulness, descended as a gas cyclone from Fort Sill, Okla. With them arrived an assignment of the gas masks adopted by the United States Army for protection against the poisonous and other gases being used in the present war.

Poison gas was first used in modern warfare, April 22, 1915, by the Germans against a sector of fresh Canadian and French forces, with the double purpose of destroying the morale of the fresh contingents and causing casualties. This was followed by a fresh trial, defensive, against the French attack on the 26th, which was likewise successful. Its use soon became general. This was cloud gas, and as its efficacy depended definitely on atmospheric conditions, gas shells soon were substituted, and now constitute 30 per cent. of the shells used.

The objects in the use of gas are: (1) putting men out of action (casualties); (2) hampering men in artillery, delaying maneuvers; (3) preventing supports and supplies from being brought up, and (4) inspiring general terror.

The gas is used in the form of cloud gas and gas shells in the following varieties:

1. Lacrimatory—direct primary effect on the eyes.
2. Asphyxiating—direct corrosive and irritating action on the respiratory tree.
3. Paralysant—causing central nerve paralysis.
4. Miscellaneous—nauseating and blistering compounds.
5. Accidental—nitrous fumes and carbon monoxid from explosion of mines and high explosives.
6. Mixed.

To combat gas attacks, gas masks and warning are employed. The masks are box respirators of a regulation type. They consist of a canister containing layers of cotton, filters, charcoal, a neutralizing agent—soda lime—and an expiratory shutter valve. Masks are provided with mouthpieces, nose-clip and goggles, fastened into rubber tissue, to protect against tear gases. Warnings come from various sources—aeroplanes and outposts, the whistling sound of the gas itself, which can be heard for 200 yards, smell, the appearance of a cloud of any color, and the loss of the taste of tobacco.

As there is short time allowed to don the mask when in action, drills to speed up its adjustment must be given.

GAS DRILL

There are three preliminary commands: 1. "Mask at carry." Here the satchel is swung over the left hip, with the sling passing over the right shoulder. 2. "Gas alert." The satchel is advanced to the front of the body, with both arms through the sling, and flap open. 3. "Gas" by numbers (adjustment of mask): 1. The right hand is thrust into the satchel and the mask seized firmly, the tube fitting into the palm of the hand, with the fingers grasping the eye-piece. 2. The mask is brought smartly from the satchel, with the fingers grasping the edge of the face-piece, and is brought close to the chin, which is thrust forward. 3. The mask is brought upward, the chin dug into it, and at the same time the elastic bands are placed over the back of the head. 4. The metal breathing tube is seized in the right hand, and the rubber mouth-piece is placed in the mouth. 5. The nose-clip is attached well down over the nostrils. (This is necessary to prevent nose-breathing, as all of the air taken into the lungs must come through the canister containing the antidotes.)

This drill is continued to a point of efficiency whereby it is possible to adjust the masks from "Masks at carry" to the finishing touch of fastening on the nose-clip, in six seconds.

For the purpose of this drill the innocent Docs are ruthlessly lined up, preparedly gassed by lectures, and then forced to don their masks. One look, and there is a mad rush for cameras, to perpetuate their first appearance in the gas masks. That night 300 letters go home, telling of the marvelous experiences and hair-breadth escapes from the gas clouds—shell gas and lecture gas.

As a lesson in anatomy, the gas drill is excellent, and many learn for the first time, while adjusting the nose-clip, the exact position of their noses. The masks also demonstrate that drooling is not exclusively an attribute of infancy, and that bibs may be used to advantage even by medical officers. The constant irritation to the mouth of the tight-fitting mouth-piece fastened to the end of the breathing tube causes an excessive flow of saliva, which escapes through a drip tube out on the chest. It is not an uncommon experience at the beginning of this work, and until one is accustomed to the mouth-piece, for the flow of saliva to be so great as to soak through the clothing.

The first sensation of uneasiness over, and the novelty past, all found to their surprise that the mask, although grotesque in appearance and somewhat clumsy, could be worn without discomfort, and that it permitted perfect freedom in breathing.

This course of instruction, patterned after the British organization, occupies a week, divided between lectures, drills and demonstrations with actual gases at the gas house. It is intended to cover the subject thoroughly and to show the method of protection against poison gases, describe and demonstrate the kind of gases used, and, in the Medical Corps, to give information regarding the symptoms and treatment of those unfortunate victims of this terrible phase of modern warfare.

News Notes from Fort Riley

Preparations for winter are now in progress. Barracks are being banked with earth or supplied with frame or stone underpinning. Stoves have been installed in all barracks and mess halls. Following the blizzards and cold snap of last week, we have had nearly a week of ideal Indian summer weather. Warm, mild sunshiny days and cool, pleasant nights make ideal weather for field maneuvers and bivouacs.

The remnants of Companies 5, 6, 7, 8 and 9 have been consolidated into one company and transferred to No. 6 barracks. This combination is known locally as the "scrambled eggs company," although its own members prefer the title of "Rainbow Company."

No. 7 Mess Hall has been converted into an officers' reading room and library. It is furnished with stoves, tables and chairs, and forms an ideal place for study, reading and letter writing. Medical journals, popular magazines and books are plentifully supplied. This room is generally patronized, and fills a long felt want in the camp.

On Thursday and Friday of last week, companies were taken in a practice march and bivouac to Hay Camp Springs, each man carrying his full equipment with the exception of his bedding roll. The boys supplemented the regulation field reserve ration with rabbit stew, thus furnishing a practical illustration of living on the country.

Field tactics in the morning and regimental maneuvers in the afternoon have given Companies 8 and 9 abundant practice in equitation, on some days giving an opportunity for six or seven hours a day on horseback. Each student officer, in turn, acts as a regimental surgeon, brigade and division surgeon, and is required to issue his orders and carry out his plans. Instruction and practice in locating regimental aid stations, ambulance dressing stations and field hospitals have been greatly enjoyed, the terrain of the Fort Riley reservation affording unusual opportunities for such work.

Major K. W. Kinnard, M. C., U. S. Army, has been ordered to the medical officers' training camp from Camp Sherman, Chillicothe, Ohio, to act as director of field hospitals.

Major George G. Davis, M. R. C., of Chicago, has been relieved as director of field hospitals and assigned to the command of Evacuation Hospital No. 1.

BIVOUAC PRACTICE

One of the things much looked forward to by those men who really enjoy outdoors is the practice march and bivouac. The company, each man equipped with his shelter half, rope and pins, haversack and canteen and carrying the standard reserve ration, is marched out to Hay Camp Springs, which is a delightful place for a bivouac. The pup tents are pitched on each side of the company street, and then the tents, as well as the officers' personal belongings, are carefully inspected by the officer in charge of the party. To accustom the officers to the use of the Lyster bag, no water is permitted to be used until it has been properly chlorinated in the bags, although the water at the springs is of the best. The reserve ration alone is permitted, and no extra food or delicacy of any kind may be taken. Each officer cooks for himself; and the bacon, crisply fried in the meat can, never tastes better than when on such an expedition. The bread comes in two packages, and is in the form of a cracker. Without butter these crackers would be unpalatable indeed; but after being dipped into hot water (heated in the cup going with the canteen) and then mixed thoroughly with the melted bacon fat, they form quite a savory dish. Coffee is made, and completes the menu. While bacon, hardtack and coffee with sugar but without milk may sound to the uninitiated an insufficient meal, it is far from being such. The caloric value is amply sufficient for a heavy man doing heavy work.

To make oneself comfortable in a pup tent requires, first, that one be thoroughly tired, and second, that one be not too badly coddled by the refinements of civilization. The average officer sleeps well, albeit, if the night is cold, it may be an effort to keep warm. Blessed is he whose tentmate does not snore; for with two men in a space as small as that encompassed by a shelter tent, the relation of one to the other is much like that of a pair of spoons in a case. For breakfast, more reserve ration, for luncheon ditto. Cleaning the dishes is not an extensive process, but one that would put the average housewife to her wit's end. Yet with some time and much rubbing, it can be done and done satisfactorily too.

The allowance of equipment taken on the wagons is 50 pounds, which includes absolutely everything. To make sure no one "hunches," the rolls are weighed.

Company 8 in its bivouac had a rabbit hunt. Forming a circle, they managed to scare up and kill some score or so of rabbits, which were promptly transformed into savory stew. The next day's march home finds each officer with a new idea as to just what a bivouac means and how it feels to be on the reserve ration.

NEWS OF THE CANTONMENTS

Twenty-Eighth Division, Camp Hancock, Augusta, Ga.

Representatives from the Surgeon-General's Office recently visited the camp to inquire into the shortage of equipment.

Major Dillinger recently returned from a short leave of absence. He is assistant division surgeon. He has been active in Pittsburgh politics, and was recently a candidate for councilman.

A course of intensive training for the medical officers was begun here, November 1. Among the lecturers are Lieutenant-Colonels Keller and Crookston, Majors Frescoln, Heffelbower, Crampton, Schaeffer, Dillinger, Swayne, Hogan and Schwartz, Captain Stone and Lieutenants Wood, Smith, Laws, Snyder, Seeley, Hollister and others. The course will include the modern advances in military surgery, trench sanitation, French and antigas warfare.

Thirty-First Division, Camp Wheeler, Macon, Ga.

BASE HOSPITAL NOTES

There are at present under treatment in the hospital 1,322 patients, although three wards are still incomplete. Three fourths of the patients have measles, and unless there is an abatement of the epidemic, it will be necessary to occupy the hospital tents pitched for use in case of need. Six tents, each with a capacity of twenty-five patients, are in place, and will be used for convalescent measles patients only should the emergency arise. Heretofore it has been possible to care for all patients under roofs, though all porches and the machine shop have been utilized to that end.

Notwithstanding the crowded condition of the wards, the patients are content, and there are few complaints. When these are made they are at once investigated thoroughly, and relief given as indicated.

The mortality rate speaks for itself, and shows conclusively that even under great difficulties sick and wounded men can be handled satisfactorily. As sequelae there have been nineteen cases of pneumonia, with two deaths.

It should be gratifying to the profession to know that practically every one, from the commanding officer to the lowest private, has risen to the occasion of this emergency; but it is no more than is to be expected. Conditions arise in war which must be overcome, and they are overcome.

The enlisted personnel has been increased by eighty men arriving from Camp Lee. It is believed that there are now enough.

The nurses' quarters are nearing completion, and will be ready for occupancy in a few days, as will the isolation and neuropsychiatric wards. It will probably be necessary to use the latter two for measles patients for the time being.

The mess officer and kitchen personnel are accomplishing the almost impossible task of feeding 1,700 people with a mess hall and equipment intended for 500.

PERSONAL

Captain Pratt has begun his course of instruction in gas defense, which is extremely interesting.

Major Harrold, M. C., acted as one of the judges in the athletic competition at the Georgia state fair.

The Georgia branch of the Daughters of the American Revolution intends to present an ambulance to the Thirty-First Division, for service in France.

Major Pearce Bailey, chief of the neurologic division of the medical service, visited that division last week.

Captain Mitchel, Sanitary Corps, is now on duty with the division as sanitary engineer.

ONE HUNDRED AND SIXTH SANITARY TRAIN

Recently a short problem was workeed out west of the Marion road, 2 miles north of the base hospital site. The tag-patients were detailed from the Florida and Alabama field hospital companies. Work of the regimental detachment was carried out by the hospital corps detachment of the One Hundred and Twenty-Second Infantry, commanded by Major Lindrome. The dressing station was established and the wounded evacuated to the ambulance company dressing station from the regimental collecting point by Ambulance Company No. 121, Capt. Robert F. Ashworth commanding. From the dressing station the wounded were evacuated by the motor ambulances to a theoretical field hospital established at Section 19. Considerable improvement was noted in development of coordinated effort over the problem of last week.

The ambulances of Ambulance Company 124 (mule-drawn) are in process of receiving their initial coat of olive-drab paint, showing in striking contrast to the familiar dark painted bodies.

Additional details of thirty-five men were made for special duty at the base hospital the past week in order to meet the increased demands of the heavy work incumbent on the base hospital. Though further depleting the enlisted personnel available for routine drill and instruction purpose within the train, it is evident that the training received in the actual care of the sick will be of great value in the future work of the train.

Major Cornelius F. Holton, commanding Field Hospital 123 (Georgia), by direction of the division surgeon has pitched the complete ward-tent equipment on the base hospital grounds for use should the emergency require.

Lieut. Daniel P. Campbell has returned from his short leave of absence a happy benedict. Mrs. Campbell has taken up her residence in Macon.

It is with deep regret that we note our first casualty in the train in the death of Private Aubrey Moore of Ambulance Company No. 123, a young man of sterling quality, with great promise of soldierly development. In attending the sick in one of our detailed detachments at the base hospital, he contracted lobar pneumonia. Even as on the field of battle, "he died in line of duty."

The sick rate of the sanitary train reflects credit on the officers and men of the train, being the lowest of any organization in the division.

Again the hopes of the train commander, Major Keenan of Massachusetts, have been raised in the anticipation of the carrying out of the promise of a dinner of "possum and 'taters." As reported two weeks ago, the prospective dinner was stolen from his cage. However, Friday morning a fine fat subject of the possum tribe arrived from some unknown source, and at the present writing we are sure, at least, that said possum is deceased and ready for the oven. Massachusetts still has hope of being convinced that this famous dinner combination is what is claimed for it.

The weekly social of the officers and ladies of the train, with their guests, was held as usual in the recreation hall. The Florida field hospital orchestra furnished the music for dancing. The usual buffet luncheon was served.

The completion of the framing of the tents for cool weather has insured more comfortable quarters. The acquisition of considerable more clothing now renders comparative comfort, especially at night.

Major Job C. Patterson, director of field hospitals, visited last Sunday at the neighboring settlement of Columbus. We have no definite information, but we suspect that a young man's thoughts may turn "lightly to love" even though spring is several months away.

Thirty-Fourth Division, Camp Cody, Deming, N. M.

Enlisted men of the division already present number about 23,000. During the past two weeks the number has been rapidly increasing. The camp is a collection of human beings of wonderfully good quality, and life in it induces a daily growing respect for the man power of America. These men, from our middle western plains, are a bulwark of defense on which the nation may confidently rely.

The spirit of the camp is excellent. It is well expressed in an address delivered by Brigadier-General Mauldin in command of the division on the occasion of the opening of the School for Medical Officers. He said:

> We face an enemy capable and determined, and the task before us will require the best that each man in our Army has in him. But the Army has already accomplished things that seemed impossible. In this war the Medical Department faces the greatest demand that has ever yet been made on the medical profession. The response has been good. Men have made great sacrifices in order to serve the nation, and these sacrifices are appreciated. Our medical officers are ready to work all the time with all their capacity. More than that is required. We must work together. Cooperation with each other and with the rest of the Army is essential if we are to meet the new and unconsidered duties by which we shall be confronted in the war, and win. But we know that each man will give his utmost effort to the United States, and that he will coordinate his efforts with those made by his fellows. We know that each man will be filled with the determination to win, and we shall win.

During the week ending October 22, 2,555 men were examined by each of the medical boards. Of these there were rejected on account of disease by the tuberculosis board (2,342 examined), 10; by the cardiovascular board, 9; by the ophthalmologists, 12; by the board examining the mentally defective, 5. The results of the work of the tuberculosis board are of interest in that they indicate the probable percentage of incidence of pulmonary tuberculosis among the supposedly healthy members of the communities in our north middle states. Cases discovered by this board are incipient. The advanced ones have already been thrown out by the physicians who examined the men on enlistment. This percentage has been 0.5 per cent., and it is probable that during the autumn months this percentage of individuals in any of these communities is developing active pulmonary tuberculosis. Special effort is made to detect these early cases. Organization commanders are requested to send for examination all men in their command who have cough and expectoration, or who show lassitude and inability to perform full duty. New cases are promptly discovered, and the probability of recovery of those thus early detected is great.

VENEREAL DISEASE

The number of cases of venereal disease contracted in or about the camp is gratifyingly small. Since the division came to Camp Cody, Aug. 25, 1917, only eleven new cases of gonorrhea and one case of chancroid have developed. When it is considered that the total number of men in the camp is over 22,000, this affords a gratifying evidence of the efficiency of the measures of prevention that have been instituted. This is a percentage of 0.0036 per month. Many of these patients had not taken the required prophylaxis. They thus come under the operation of G. O. 31, 1912. They are deprived of pay while off duty, and they will be tried by court martial for neglect of duty and failure to obey orders. In contrast with this small percentage of cases contracted here, it is very interesting to note that 440 cases were imported. The anxiety that has been expressed concerning the dangerous moral environment of our troops in camps would be better directed toward the home environment, since the number of cases contracted at home is to the number of cases contracted at camp as 38:1.

The treatment of these cases is a matter of great importance in the Army, since there depends on it the effectiveness of many U. S. soldiers. That which is required in this camp is stated in the following memorandum:

MEMORANDUM ALL SURGEONS, THIRTY-FOURTH DIVISION

The division surgeon desires that the following recommendations be followed as closely as equipment will permit in the treatment of venereal diseases at regimental infirmaries:

GONORRHEA

1. Patients must be instructed in personal cleanliness. They will be advised to wash their hands after each urination and will be cautioned against the danger of infection being carried to the eyes by unclean hands.

2. It is necessary in the thorough treatment of gonorrhea that the penis be cleansed before each injection, with a nonirritating soap and water. Frequently the foreskin is not retracted and the penis is not thoroughly cleansed. The practice of sealing the urethra by means of a small pledget of cotton, which is held in place by retracting the foreskin over the head of the penis, should be avoided. This tends to prevent drainage, and reinfection frequently takes place. The best method of protecting the clothing is to put a piece of clean cotton over the end of the penis to extend about one-third way back and which can be held in place by means of a rubber band.

3. After the above cleansing process, the patient will be advised to urinate before each injection. As gonorrhea is an acute infection of the mucosa of the urethra only, it is necessary that whatever treatment is carried out be nonirritating and one that will not increase the inflammation. When too strong injections are given, posterior urethritis is frequent, and injury to the mucosa occurs which results in chronic gonorrhea or gleet. It is advisable to begin with an injection that is not stronger than one fourth of 1 per cent. protargol. This can be increased, depending on the patients' tolerance and the amount of discharge. Injections should be given every two to six hours by the surgeon, or under his supervision. Care should be taken that the syringe does not traumatize the mucosa and thus open up new avenues of infection. The urethra should not be overdistended, but should be comfortably filled so that the patient has no difficulty in holding the drug at least ten minutes.

The surgeon must insist that all patients drink a large quantity of water, which can be made bland by the use of small doses of sodium bicarbonate. Hexamethylenamin and other urinary antiseptics are very useful, but must not be used in large enough doses to produce irritation of the sphincter and posterior urethra. The injection of large quantities of water causes the urethra to be continually flushed from within out, which is the desired effect. Erections at night should be avoided. Advise your patients to sleep with a little less than the usual amount of covering. It is not desirable that they be chilly or cold, but too much warmth frequently induces erections. When necessary, bromids or other nerve sedatives should be used to control erections.

4. Glass syringes are frequently broken when boiled. They can be disinfected and the gonococcus killed by immersion in a phenol (carbolic acid) solution. Care should be taken that they are thoroughly washed before being used.

5. Much better results can be obtained when using silver salts if the surgeon will have the solution freshly prepared.

6. Frequent examination of the urethral discharge is necessary. This can be accomplished by referring the patient to the base hospital with a note asking that a smear be made. The proper time to obtain such a specimen is before the morning urination.

7. Gleet or chronic gonorrhea is the result of infection into the submucosa of the urethra. It is necessary in this group of cases, after the gonococcus has disappeared, to sound the patient regularly. This will be done by the chief of the genito-urinary clinic at the base hospital, and such patients can be directed to see this officer at the Friday conference and at such other times as the officer may direct.

8. Chronic cases that do not respond to the usual treatment as carried out at the infirmary should be referred to the officer in charge of the genito-urinary clinic, base hospital, for diagnosis and suggestions relative to treatment.

9. Patients requiring endoscopic or cystoscopic examinations will be referred to the base hospital.

CHANCROID

1. All suspicious sores will be referred to the base hospital for diagnosis before treatment is begun. Dressings and medicines of all kinds should not be used before the officer in charge of the laboratory has had an opportunity to obtain some serum for dark field examination. Chancroid is best treated by soaking the penis in some mild antiseptic solution which should be comfortably hot. A saturated solution of argyrol, or the pure crystals of argyrol, applied to such a lesion will usually bring about quick recovery. The inguinal adenitis can usually be controlled by applications of blue ointment. Vaccines are of some use in very chronic cases. The surgeon must be on the lookout for a double infection, as frequently a lesion begins as a chancroid, and later a syphilitic infection develops. When suppuration of the inguinal glands occurs, patients should be immediately referred to the base hospital for treatment.

CHANCRE

1. As mentioned above, every suspicious sore should be examined by the officer in charge of the laboratory, base hospital, so that if syphilis is present, treatment can be started at once. It is necessary to have sterile distilled water for intravenous treatment. Patients requiring salvarsan or neosalvarsan or the intramuscular injection of mercury will be referred to the base hospital. These patients need not remain in the hospital, and can be returned to duty the same day. The Wassermann test is not positive in early syphilis, so that it should not be depended on for a diagnosis. The test should be used in every suspicious case except the early primary lesion. In these cases, as mentioned above, the serum examination for spirochetes is positive in every case of syphilis. A negative Wassermann test does not mean that syphilis is absent. It is necessary that the surgeon study the case together with the laboratory findings before making his diagnosis. Provocative medication is frequently necessary. Mercury can best be used by the inunction method. When this method is used, it is necessary that the surgeon personally supervise the rubbing so that he knows at all times the amount of mercury the patient is absorbing. A good plan to follow is that the men be required to sleep in their undershirts and that the mercury be rubbed into the torso. They should bathe but once a week, at which time the undershirts can be changed. Five treatments per week are sufficient. A course of treatment should take six hours, and consist of thirty rubs.

2. Cases that should be referred to the base hospital: acute epididymitis; posterior urethritis; prostatitis; seminal vesiculitis; suppurating buboes that require drainage; cases for intravenous medication; cases for Wassermann test; in addition, the above mentioned cases for diagnosis and special treatment.

A copy of this memorandum will be posted in a conspicuous place in the room in which venereal treatment is given.

By order of Lieutenant-Colonel.

Some other lines of sanitary work in progress are important. Food is being carefully inspected. All that comes into camp must conform to certain standards. Meat passes the local inspector of the BAI before delivery to the quartermaster, and between the quartermaster and the companies it must pass that of the camp inspector. Milk must measure up to the standards set by the BAI. It must not score less than 75 per cent., and dairies are inspected once in thirty days. Bacteriologic examinations of milk are made, and those dairies whose produce fails to be approved are denied permission to sell to the camp, nor are ice cream factories, bakeries, etc., using this milk permitted to sell to the camp. Canned goods are inspected before issued. Those cans that are leaky and those showing the presence of gas are rejected. The laboratory at the base hospital is now equipped to conduct these examinations for the camp.

The examination of all those concerned in the preparation or handling of food to discover carriers of typhoid or paratyphoid has resulted in the detection of one paratyphoid carrier, who was promptly relieved from duty in the kitchen.

Incoming troops are examined on the train for contagious disease. At the end of their long trips, those trains pull into our sidings, and our newcomers are given a welcome by the band; but before they come within hearing of the martial music, Major Kenney, M. C. N. G., and his staff are already inspecting them, and some unfortunates go from the train directly to the contagious wards of the base hospital. All the others must go to the detention camp of the depot brigade, where during two weeks they carry on in isolation the work of training, before they are admitted into full membership and good standing in our healthy community. Everywhere throughout the camp cases of contagious disease that appear are promptly removed to the hospital, and the contacts, that is, those living in the same tent or in immediate association with them, go to the contact camp out in the unmitigated desert, there to enjoy a noninterrupted view of the far away mountains during whatever leisure is permitted them by the system of intensive training which makes its presence felt even there. The contact camp was commanded by a line officer, there being about 300 men in it; but as this arrangement proved unsatisfactory it is now in charge of Ambulance Company No. 134, commanded by Lieut. F. H. Roost. The Medical Department has taken it over entirely.

Thirty-Fifth Division, Camp Doniphan, Fort Sill, Okla.

A quadrilateral, the monotony of its low and once whitewashed stone walls broken only by the regularly spaced chinks through which one time blazed the fire of the trooper's rifle—such is old Fort Sill.

WORK OF THE DIVISION SURGEON

The sanitary and medical care of the camp is in charge of Lieut.-Col. W. T. Davidson of the Regular Army, under whose efficient and experienced leadership the camp has fared exceptionally well so far. He is ably assisted in this work by Major Carl Philipps, M. R. C., sanitary inspector, and Capt. W. L. Gist, M. R. C., adjutant. One of the difficult problems that the division surgeon had to solve was represented in the water supply. Owing to an unprecedented inadequate rainfall, which has continued now for a period of almost eighteen months, the impounded waters of Medicine Lake, which supply the camp, had become exceedingly offensive from an overgrowth of algae. This condition has now been quite satisfactorily overcome by adequate methods of treatment, to which the present cold weather has given considerable assistance.

The immunization of the troops against typhoid, paratyphoid and smallpox has practically been completed. In addition to these preventive measures, all cooks and those who handle or prepare food are being subjected to special examination to determine their freedom from typhoid germs. So far no carriers have been found.

A special course of instruction in matters pertaining to camp hygiene and sanitation, as well as the special features in the examination of recruits, has been arranged for and is well attended and appreciated. Special examining boards for tuberculosis, cardiovascular, and nervous and mental diseases are also active in weeding out the unfit.

The venereal disease problem also, here as elsewhere, forms one of the important considerations. Since October 1 there have been 322 venereal disease patients under treatment in this division; this makes approximately 1.3 per cent., a figure not excessive when compared with civil life statistics, especially when one considers that under the draft many men already infected are brought into camp.

The general disease incidence for the camp has been low thus far, reaching not quite 2 per cent. Contagious diseases have been relatively infrequent. Since the establishing of the camp in August there have been all told but two cases of cerebrospinal meningitis, nine of diphtheria and fourteen of pneumonia in the division. A case of anthrax with recovery may be mentioned among the more unusual infections that have come under observation. An outbreak of measles in one of the companies was promptly controlled by rigid isolation, and no new cases have been noted.

It is the opinion generally here among medical men that the absence of alcohol has added greatly to the efficiency of the men and to a lessened morbidity.

BASE HOSPITAL NOTES

Pending completion of the base hospital, the sick are being taken care of at the post hospital of Fort Sill. The opening of a number of wards of the new base hospital has made the care of the patients less difficult, however. When all of the buildings are completed there will be hospital accommodations for more than 1,200 patients, a little more than 3 per cent. of the total command. Past experience of the Army Medical Department has shown that this is about the average of sick in large commands.

Major P. B. Connolly of the Regular Army is in command at the base hospital, and the chief branches of the service under him are in the hands of the following Medical Reserve Corps officers: Major A. W. Barksdale, surgery; Major S. Strauss, medicine; Major A. C. Magruder, eye, ear, nose and throat, and Major G. C. Ruhland, laboratories.

Eighty-Third Division, Camp Sherman, Chillicothe, Ohio

Camp Sherman is situated on a broad plain of alluvial deposit on the west bank of the Scioto River. It is 2 miles north-northwest of Chillicothe, which is 50 miles south of Columbus and 98 miles northeast of Cincinnati.

The cantonment is rectangular, half a mile wide and about 2 miles long, and lies in a bend of the river, which for 15 or 20 miles follows a serpentine course. It is in one of these curves that the camp is placed. The barracks and officers' quarters are completed, and most of them are heated.

DISEASE INCIDENCE

There have been about forty cases of pneumonia, but no epidemic. In the second increment of the draft a patient with acute tonsillitis arrived, and before isolation was effective there were thirteen cases; the next day there were eighteen cases and on the third day eleven cases; from then on the epidemic subsided to nine cases, then three, and after the sixth day no other cases appeared. The rapid development of these cases and the prompt subsidence of the epidemic prove the infectious nature of the process and warrant immediate and vigorous action when such cases appear in groups of men. There were eight cases of Vincent's angina, but they yielded promptly to local treatment. One case of epidemic meningitis showed the immediate effects of the injection of Flexner's serum, 400 c.c. of which were injected, partly by the intravenous and partly by the intraspinal route. All contacts were isolated and throat cultures were negative. In the city of Chillicothe there have been sixteen cases of smallpox, but none in the camp. Every draft or enlisted man before his physical examination is completed is vaccinated. The inoculations against typhoid and paratyphoid A and B have been followed by the usual reactions, but there were none of unusual severity.

PERSONAL

First Lieutenant Brainard from the Infantry School of Arms, Fort Sill, Okla., is in charge of the instruction in methods of gas defense and the treatment of gas casualties.

The Ross County Academy of Medicine, October 10, gave a delightful entertainment for the medical officers of the camp. It was well attended, and the president, Dr. F. T. Marr, made a cordial address of welcome which was responded to by Lieut.-Col. Wallace De Witt, the division surgeon. The county societies and the local medical societies as well as the druggists have arranged a plan of cooperation for the improvement of the sanitary conditions of the city and county which should prove of the greatest value and yield excellent results.

The campaign for the Second Liberty Loan obtained the total subscription of over $2,000,000 from the division.

The medical and sanitary problems are in the care of the division surgeon, Lieut.-Col. Wallace De Witt, M. C., U. S. Army, who has been four years at Fort Ethan Allen, Vt., and for two summers in charge of the training camps at Plattsburg, N. Y. Major John A. Burket, M. C., is in charge of the sanitation. Capt. Robert H. Halsey, M. R. C., is assistant division surgeon.

The base hospital, with a capacity of 1,000 beds, is under the command of Major Edward G. Huber, M. C. Major Christian R. Holmes of Cincinnati is chief of the otolaryngologic service. Major Casey A. Wood, M. R. C., of Chicago is chief of the ophthalmologic section. Major James A. Harvey, M. R. C., is chief of the surgical service. Major Dudley DeV. Roberts, M. R. C., is chief of the medical service. Captain Stanley M. Rinehart, M. R. C., is special examiner in tuberculosis. Capts. Henry L. Stick, M. R. C., Elmore E. Adel, M. R. C., and Charles W. Hoyt, M. R. C., are among those doing special work.

First Lieut. Benjamin H. Sherrard, Dental Corps, is directing the work of the dentists, of whom there are about forty-five in the cantonment.

The sanitary train is under the direction of Major Henry S. Satterlee, M. R. C. Major John R. McDowell, M. R. C., commands the ambulance companies. The field hospitals are well organized and almost completely equipped.

That the general health of the camp is excellent is shown by the noneffective rate, which is 14 per thousand.

Eighty-Sixth Division, Camp Custer, Battle Creek, Mich.

Preparations are being made through all regimental sanitary detachments to systematize the work of examining the remaining draft increment that is due to arrive almost any day. This will represent 55 per cent. of the original draft. With the experience gained through the examinations of those already here, there is no doubt that the large number expected will be run through with rapidity and precision. It is expected that there will be fewer discharges on account of physical disability than among the first examined, owing to the fact that the examining boards in the draft districts will be more thoroughly trained through the experience they have already had. The division surgeon has outlined plans which, when carried out, should make it possible for every medical officer to gain some experience in this form of examination and some practical knowledge of the paper work necessary in making out reports for acceptance and for discharge. Changes which are contemplated following an outlined course of instructions as suggested by Colonel Munson, U. S. M. C., will cause a general mix-up of all medical officers for the purpose of instructing them in the necessary detailed work of every medical organization in the division. Field hospital and ambulance company officers and enlisted men will be changed to regimental detachments, regimental detachment officers and enlisted men to field hospitals and ambulance companies, thus making it possible for every medical officer to become familiar with the work of the various organizations, making for greater efficiency in every department. Courses of lectures by line officers and experts in military hygiene, sanitation and the various medical and surgical specialties will be given and must be attended by all medical officers. This is not done with the view of making specialists of medical officers, yet it is very necessary that the medical personnel be thoroughly trained in all branches represented by these courses of instruction.

The Calhoun Medical Society of Battle Creek met Tuesday evening, November 6. Major Roy Bishop Canfield read a paper entitled "Consideration of Some Types of Sepsis and Their Results." Major Ernest Edward Irons read a paper entitled "Chronic Muscular and Articular Rheumatism: Treatment as Based on Etiology." These papers were discussed both by the civilian physicians and the members of the Medical Department, who were present in large numbers.

SANITARY TRAIN

The weather conditions have improved so that outdoor work has been progressing rapidly. Long hikes with maneuvers are daily occurrences. The men relish the change, as lecture work and indoor drills were becoming very tiresome.

Ambulance Company No. 340 gave a large banquet to the officers of the company Tuesday evening, November 6. Invited guests were Major E. C. Jackson, director of ambulance companies; Major Lewis Wine Bremerman, director of field hospitals, and Capt. C. J. MacGuire of Ambulance Company No. 337. Home talent was utilized, and a very enjoyable evening was the result.

Athletes are numerous in the sanitary train. The ambulance companies have developed an extraordinarily fine football team. They have been coached by Capt. H. H. Varner, commanding Ambulance Company No. 340, late coach of the University of Virginia. The team has been unbeaten this season, and has challenged any football team from any sanitary train in training at the present time.

BASE HOSPITAL

The base hospital is nearing completion, and in a short time will be in a position to carry out all its work in a normal manner. Major Wood, commanding, is to be congratulated on the manner of conducting the work there to date, handicapped as he has been by cramped quarters, inclement weather, incomplete heating arrangements, and other difficulties. All patients have been given fine care, and there has been no complaint from any quarter.

Eighty-Ninth Division, Camp Funston, Fort Riley, Kan.

This camp was originally planned for one infantry division and one depot brigade. Now, however, there are really three divisions: the eighty-ninth, white; the ninety-second, colored, and the depot brigade, while the division surgeon's office, therefore, is practically handling the work of an army corps. Nevertheless, the work of examining the men of the National Army has been done quickly and smoothly. It has been so systematized that one examining board has frequently examined over a thousand men in a day, including the administering of smallpox vaccine and the initial dose of the typhoid and paratyphoid prophylaxis.

A training officer, Medical Department, has been appointed for the Eighty-Ninth Division, and a schedule of instruction for the officers and men of the Medical Department has been instituted. Special subjects pertaining to work of the line are given in nightly lyceum lectures, by special officers of the departments concerned. The medical subjects necessary for the instruction of the enlisted personnel are taught by medical officers of the various organizations to which these men belong.

Col. Frank W. Weed, M. C., is sanitary inspector of the Eighty-Ninth Division. Major J. M. White, M. R. C., of St. Paul, is sanitary inspector of the Ninety-Second Division. Capt. R. B. Irones, M. R. C., of San Diego, Calif., is instructor in gas defense for the Eighty-Ninth Division.

The base hospital of Camp Funston is located at Fort Riley, 4 miles away. Patients, and clothing to be fumigated, are taken there and returned by ambulances over the new government macadamized road. A simple system of paper work has been instituted for these transfers, and no confusion results. At present, out of the whole command, there are approximately 30 cases of measles, 25 cases of cerebrospinal meningitis, 35 of mumps, 2 of scarlet fever and 50 of lobar pneumonia. No serious accidents have occurred, the worst being the loss of three fingers by a private who was fashioning a wooden rifle with an ax.

VENEREAL DISEASE

In civil life we have all heard of the great frequency of venereal diseases among soldiers of the Regular Army. In view of this teaching, it may be of interest to note our experiences in the examination of the National Army men just out of civil life on their arrival in camp. For the white troops the incidence of all venereal diseases has ranged between 5 and 6 per cent.; for the colored troops, over 20 per cent. These are all cases contracted prior to enlistment. At the time of present writing, no case has been reported that has been contracted since entering the military service in the Eighty-Ninth Division, which should furnish food for thought.

TYPHOID VACCINATION

A number of officers and men had received their typhoid prophylaxis prior to the order which made paratyphoid vaccination likewise compulsory. These men have subsequently had to take the three doses of paratyphoid A and B vaccine, whereas the men of the National Army have received only the three doses of U. S. triple vaccine, which consists of the paratyphoid and typhoid vaccines combined. It has been an experience common to the medical men of the camp that the reaction from the inoculation of paratyphoid vaccine, alone, has been much more severe than that of the triple vaccine or of the typhoid vaccine, alone. So far, no explanation has been attempted.

"SOB LETTERS"

An unpleasant phase of a medical officer's life is the "sob letters." Dozens of these, in tenor all alike, came through here every week. Anxious mothers, overzealous wives, and even mere acquaintances flood us with affidavits and letters about the physical condition of some of the men brought here by the draft. Some of these letters are extremely sad, others are absurdly funny, but all alike are given full consideration, which means a reexamination of the person referred to, by the already overworked surgeon. These letters rarely amount to anything, as the men unfit for service have already been weeded out as nearly as is humanly possible by the surgeons of the organizations to which they are attached, or by the Camp Board of Special Examiners.

PERSONAL

Capt. Bruce Ffoulkes, M. R. C., has been made director of field hospital companies, and Lieut. John D. Bartlett, M. R. C., has been made director of ambulance companies, of the Three Hundred and Fourteenth Sanitary Train, Eighty-Ninth Division. Lieut.-Col. Harry L. Boyer, M. C., has been appointed division surgeon of the Ninety-Second Division, and Captain Nicholls, M. R. C., formerly of the Presbyterian Hospital in Chicago, has been made his assistant. Lieut. Louis G. Harney, M. R. C., of wide industrial medical experience with the American Steel Foundries of East St. Louis, is assistant to the division surgeon of the Eighty-Ninth Division. Lieut. Judd H. Kirkham, M. R. C., of Langdon, N. D., is attending surgeon of the headquarters, Eighty-Ninth Division. Lieut. Albert G. Bower, M. R. C., formerly of the Department of Bacteriology, University of Chicago, is medical training officer of the Eighty-Ninth Division.

DISEASE CONDITIONS AMONG TROOPS IN THE UNITED STATES

Extracts from Telegraphic Reports Received in the Office of the Surgeon-General for the Week Ending Nov. 2, 1917

1. Total strength of troops	1,001,632
Admission rate per 1,000 (disease only) annual	955.2
Non-effective rate (all causes)	25.6
2. National Guard, strength	373,180
Admission rate per 1,000 all camps (disease only) annual	1,108.8
Non-effective rate all camps (all causes)	24.5

Camps showing admission rate for disease higher than average: Camps Kearney, Wheeler, Cody, Bowie, Sevier, Beauregard and Shelby.

Camps showing noneffective rate higher than average: Camps Wheeler, Bowie, Logan, MacArthur, Shelby, Beauregard, Sevier, Cody, Hancock and Kearney.

3. National Army, strength	426,578
Admission rate per 1,000 all camps (disease only) annual	929.8
Non-effective rate all camps (all causes)	20.1

Camps showing admission rate for disease higher than average: Camps Pike, Jackson, Dix, Dodge, Travis, Funston, Gordon and Lewis.

Camps showing noneffective rate all causes higher than average: Camps Pike, Dodge, Funston, Lewis and Dix.

4. Venereal Disease—

Admission rate Regulars	90.4
Admission rate National Guard (camps)	93.6
Admission rate National Army	135.6

Camps National Guard having rate above average: Camps Sheridan, Wheeler, Kearney, Logan, Sevier, MacArthur and Bowie.

Camps National Army having rate above average: Jackson, Pike, Custer, Dix, Lee, Travis and Meade.

5. Number of cases of pneumonia		228
Highest number in any one camp	Funston	22
Number of cases of meningitis		18
Highest number in any one camp	Funston	9

	Regulars, U. S. Army, in U. S. only, 1916		Regulars in U. S. week ending Nov. 2, 1917		Nat'l Guard, All Camps, week ending Nov. 2, 1917		Nat'l Army, All Camps, week ending Nov. 2, 1917	
	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Admissions, diseases only, annual rate per 1000	....	613	....	821.8	....	1108.8	....	929.8
Pneumonia	....	2.59	21	17.2	92	14.0	78	9.7
Dysentery	....	3.97	5	1.2	2	0.3	2	0.2
Malaria	....	12.52	7	1.8	49	7.1	43	5.3
Venereal	....	91.00	251	90.4	615	93.6	1085	135.6
Paratyphoid	....	0.31	....	0	....	0	1	0.1
Typhoid	....	0.21	....	0	2	0.3	5	0.6
Measles	....	20.29	145	57.3	990	150.8	786	98.2
Meningitis	....	0.29	3	0.7	3	0.4	22	2.7
Scarlet fever	....	0.59	17	4.3	15	2.8	6	0.7

6. SPECIAL DISEASES REPORTED DURING THE WEEK ENDING NOV. 2, 1917

Division	Pneumonia	Dysentery	Malaria	Venereal	Paratyphoid	Typhoid	Measles	Meningitis	Scarlet Fever	Strength of Command
27th, Wadsworth	...	...	1	46	...	...	....	1	...	20,014
28th, Hancock	1	...	...	39	...	...	....	...	...	28,669
29th, McClellan	3	...	...	31	...	...	18	1	...	25,390
30th, Sevier	19	...	2	46	...	...	258	1	...	23,058
31st, Wheeler	15	1	12	62	...	...	248	...	...	21,102
32d, MacArthur	...	...	...	51	...	1	16	...	...	26,016
33d, Logan	5	...	23	57	...	...	3	...	...	23,267
34th, Cody	2	...	...	42	...	...	70	...	9	25,150
35th, Doniphan	4	...	2	20	...	...	13	...	1	25,512
36th, Bowie	11	...	3	47	...	1	244	...	...	24,514
37th, Sheridan	...	...	...	73	...	...	16	...	...	24,171
38th, Shelby	20	1	4	36	...	...	50	...	...	22,368
39th, Beauregard	3	...	2	4	...	...	24	...	...	6,471
40th, Kearney	8	...	...	15	...	...	21	...	...	18,333
41st, A. L. Mills	1	...	...	45	...	...	9	...	...	10,690
76th, Devens	3	...	...	28	...	...	1	...	...	20,073
77th, Upton	1	...	...	19	...	...	1	...	...	27,762
78th, Dix	...	1	...	102	...	5	....	...	...	19,877
79th, Meade	...	...	...	8	...	...	....	...	...	24,802
80th, Lee	3	...	1	183	...	...	....	2	...	34,824
81st, Jackson	3	...	3	191	...	...	141	...	...	17,139
82d, Gordon	...	...	...	45	...	...	31	2	...	20,065
83d, Sherman	4	...	1	41	...	...	....	...	...	33,757
84th, Taylor	7	...	1	4	...	...	48	1	...	26,489
85th, Custer	...	...	...	10	...	...	11	3	3	15,898
86th, Grant	2	...	...	13	...	...	....	2	...	27,764
87th, Pike	13	1	11	177	...	...	529	2	...	21,234
88th, Dodge	6	...	...	53	...	...	4	...	1	20,388
89th, Funston	22	...	2	37	...	...	17	9	2	31,092
90th, Travis	10	...	24	96	1	...	....	...	...	28,665
91st, Lewis	4	...	...	68	...	...	3	1	...	25,038

7. Deaths by causes—

Pneumonia, lobar	22
Cerebrospinal meningitis	9
Pulmonary tuberculosis	2
Diabetes mellitus	1
Acute colitis	1
Endocarditis	1
Appendicitis	1
Measles	1
Cerebral abscess	1
Rupture right ventricle	1
Dementia praecox	1
Suicide	5
Traumatism	4
Traumatism by firearms	2
Traumatism by railroad	2
Traumatism by automobile	1
Wood alcohol poisoning	1

ORDERS TO OFFICERS OF THE MEDICAL CORPS

To report to Board for examination for promotion: Col. HENRY D. SNYDER, Washington, D. C.; Majors WILLIAM K. BARTLETT, Takoma Park, D. C.; WILLIAM A. DUNCAN, Washington, D. C.; and PAUL L. FREEMAN, Fort Myer, Va.

Major HERBERT C. GIBNER, now on duty in the Hawaiian Department *to report to board* convened by the commanding general, Hawaiian Department, *for examination for promotion.*

Col. ALBERT E. TRUBY, now on duty in the Panama Canal Department, *to report to board* convened by commanding general, Panama Department, *for examination for promotion.*

To report to board convened by commanding general, American Expeditionary Force, France, *for promotion,* Col. JAMES R. CHURCH; Lieut.-Cols. CHARLES L. FOSTER, JAMES D. HEYSINGER and JOSEPH F. SILER; Majors LUCIUS L. HOPWOOD, HENRY J. NICHOLS, OMAR W. PINKSTON, GUY V. RUKKE, ROBERT M. CULLER, CLEMENS W. McMILLAN, ARTHUR N. TASKER, and H. VAN KIRK.

To report to board convened by commanding general, Western Department, *for promotion,* Col. ELMER A. DEAN, San Francisco, Calif.; Lieut.-Col. WILLIAM H. TEFFT, Fort Douglas, Utah; and Major WILLIAM R. DAVIS, Fort Rosecrans, Calif.

To report to board convened by commanding general, Central Department, *for promotion,* Cols. PERCY M. ASHBURN, Fort Benjamin Harrison, Ind., and HENRY S. GREENLEAF, Fort Snelling, Minn.; Lieut.-Cols. HENRY F. PIPES, and GIDEON McD. VAN POOLE, Fort Benjamin Harrison; Majors HENRY C. PILLSBURY and FRANK W. WEED, Fort Riley, Kan., HOWARD H. BAILY, Camp Grant, Rockford Ill., WILLIAM A. WICKLING, St. Louis, Mo., and WILLIAM S. SHIELDS, Chicago, Ill.

To report to board convened by commanding general Eastern Department, *for promotion,* Col. FRANCIS M. C. USHER, Fort Slocum, N. Y.; Lieut.-Cols. ORVILLE G. BROWN, Camp Mills, Garden City, L. I., N. Y., JOHN R. BOSLEY, Fort Ontario, N. Y., SAMUEL M. DeLOFFRE, Plattsburg Barracks, N. Y., GEORGE F. JUENEMANN, Gettysburg, Pa., and HENRY D. THOMASON, Fort Ontario, N. Y.; Majors LOUIS H. HANSON, Syracuse, N. Y.; HARRY G. HUMPHREYS, Fort Hancock, N. J.; FREDERICK S. MACY, Fort Jay, N. Y., FERDINAND SCHMITTER, Camp Lee, Petersburg, Va.; WILLIAM C. DAVIS, Camp Dix, Wrightstown, N. J., CHARLES L. GANDY, Allentown, Pa., PAUL W. GIBSON, N. Y. C., EDGAR C. JONES, Newport News, Va., and WILLIAM W. VAUGHAN, Allentown, Pa.

To report to board convened by commanding general, Southern Department, *for promotion,* Lieut.-Cols. WILLIAM P. BANTA, Nogales, Ariz., ROBERT L. CARSWELL, Fort Sam Houston, Tex., and ROBERT C. LOVING, San Antonio, Tex.; Majors CLARENCE L. COLE, Fort Sam Houston, Tex., and EIDE F. THODE, Fort Clark, Tex.

To report to board convened by commanding general, Southeastern Department *for promotion:* Lieut.-Cols. CRAIG R. SNYDER, Camp McClellan, Anniston, Ala., and ARTHUR M. WHALEY, Camp Sevier, Greenville, S. C.; Majors CHARLES E. FREEMAN, Camp Pike, Little Rock, Ark., and LEARTUS J. OWEN, Camp Greenleaf, Fort Oglethorpe, Ga.; Lieut.-Col. LOUIS C. DUNCAN, Fort McPherson, Ga., Majors CHARLES W. HAVERKAMPF, Fort Oglethorpe, Ga., and EDWARDS C. REGISTER, Hot Springs, Ark.

To report to board of commanding general, Northeastern Department, *for promotion,* from Camp Devens, Ayer, Mass., Northeastern Department, Major GLENN I. JONES.

Colonel WILLIAM OWEN, to attend meeting of Southern Medical Association, Memphis, Tennessee, Nov. 12 to 16, 1917.

Colonel WILLIAM F. LEWIS, now on duty at San Antonio, Texas, to proceed to the following named places, for the purpose of making special sanitary inspections, and on completion of duty, to return to station: *Waco, Texas,* The Aviation Camp and Camp McArthur; *Fort Worth, Texas,* The Aviation Camp and Camp Bowie; *Dallas, Texas,* The Aviation Camp; *Wichita Falls, Texas,* The Aviation Camp; *Fort Sill, Okla.,* The Aviation Camp and Camp Doniphan; *Houston, Texas,* the Aviation Camp and Camp Logan.

Colonel EDWARD L. MUNSON, *to Roanoke, Va.,* to address Medical Society of Virginia on recruiting and training of medical officers.

Lieut.-Col. CHARLES F. MORSE, relieved from duty at Fort Benjamin Harrison, Ind., and *to proceed to Washington, D. C.,* and report to the Surgeon-General of the Army for duty in his office.

Major EDGAR KING *to Goshen, Va.,* to inspect property under consideration to be used as a general hospital, and on completion of duty to return to station.

Colonel ALLEN M. SMITH, now on duty at Fort Logan, Colo., *to Grand Junction, Colo.,* to report on the suitability and availability of the former United States Teller Institute for use as a general hospital, and on completion of duty to return to station.

Major GLENN I. JONES, now on duty at Camp Devens, Ayer, Mass., *to Washington, D. C.,* and report in person to the Surgeon-General for conference, and on the completion of duty, to return to station.

Major THOMAS D. WOODSON, to the following-named places to determine their suitability for general hospital purposes and inspecting sites for other general hospital purposes: *Stockbridge, Mass.; Worcester, Mass.; Boston, Mass.,* and on completion of the duty at Boston, Mass., to proceed to the following-named places for the purpose of inspecting sites offered for general hospital purposes, and upon completion of this duty to return to his proper station: *Willets Point,* New York; *Camp Mills,* Garden City, L. I., N. Y.; *Iselin,* New Jersey.

Lieut.-Col. WILLIAM H. MONCRIEF, *to New York City*, for temporary duty at the Rockefeller Institute and on completion of duty to return to station.

Major ROBERT H. DUENNER, to be relieved from duty in the Hawaiian Dept. and directed *to proceed to the United States*, and on arrival *to Fort Riley, Kan.*, to organize and command Hospital Train No. 25.

Major STEPHEN H. SMITH, relieved from duty at Schofield Barracks, Hawaii, and *to Fort Oglethorpe, Ga.*, to organize and command Hospital Train No. 23.

Lieut.-Col. WILLIAM C. BORDEN, U. S. Army, Retired, *to Rockefeller Institute* for a course of instruction, and on completion of duty to return to station, Walter Reed General Hospital, Takoma Park, D. C.

Major SAMUEL J. TURNBULL relieved at Fort Benjamin Harrison, Ind., and *to Fort Riley, Kan.*, and report in person to the commandant, to organize and command Hospital Train No. 24.

Lieut.-Col. THEODORE LAMSON, relieved from duty with Field Hospital No. 3, Fort Oglethorpe, Ga., and *to commandant Camp Greenleaf*, for temporary duty.

Major WILLIAM B. MEISTER relieved from duty at the Presidio of San Francisco, Calif., and *to Fort Oglethorpe, Ga.*, to organize and command Hospital Train No. 28.

Major THOMAS L. FERANBAUGH relieved from duty at Laredo, Texas, and *to Fort Worth, Texas*, Camp Bowie, to command base hospital.

Major GEORGE E. PARISEAU, relieved from duty as commanding officer of the base hospital at Camp Bowie, and *to Fort Oglethorpe*, for duty with Field Hospital No. 3.

Colonel IRVING W. RAND, relieved from duty at the Philippine Dept., Tientsin, China, and *to San Francisco, Calif.*, and report in person to the commanding general, Western Department, for duty.

Colonel HENRY A. SHAW, *to Petersburg, Va.*, Camp Lee, for duty in connection with psychologic examinations, and on completion of duty to return to station.

Major ROBERT M. HARDAWAY, relieved at Fort Bliss, and *to Fort Oglethorpe, Ga.*, to organize and command Hospital Train No. 22.

Major WILLIAM R. DEAR, relieved from Philippine Department and *to Fort Oglethorpe, Ga.*, to organize and command Hospital Train No. 27.

Major WILLIAM D. HERBERT, relieved from Philippine Dept. and *to Fort Oglethorpe, Ga.*, to organize and command Hospital Train No. 26.

Lieut.-Col. CHARLES F. MORSE, now at the medical officers' training camp, Fort Benjamin Harrison, Ind., under orders to report to the Surgeon-General's office, to proceed to the following-named camps for the purpose of inspecting the base hospital thereat, and on completion of this duty to comply with previous orders directing him to proceed to Washington, D. C., *Camp Sherman*, Chillicothe, Ohio; *Camp Custer*, Battle Creek, Mich.

Lieut. FRANK L. COLE, relieved from Allentown, Pa., and *to Army Medical School*, for instruction in orthopedic surgery.

ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

Alabama

To Camp Greenleaf, Fort Oglethorpe, for a course of instruction, Lieut. LEROY H. WOODRUFF, Anniston.

To Camp Kelly, San Antonio, Texas, for duty, from Fort Oglethorpe, Lieut. ROSCOE C. STEWART, Wylam.

To Camp Lee, Petersburg, Va., for duty, from Army Medical School, Lieut. HARRY P. SHURGERMAN, Birmingham.

To Camp Logan, Houston, Texas, for temporary duty in the base hospital, from Fort Oglethorpe, Lieut. JAMES D. PERDUE, Furman.

To Fort Oglethorpe, for a course of instruction, Lieut. MILES A. WATKINS, Birmingham.

To Newport News, Va., Port of Embarkation, for duty, Capt. MACK ROGERS, Birmingham.

To Philadelphia, University Hospital, for a course of instruction on fractures, and on completion of this course to proceed to Camp McClellan, Anniston, Ala., for temporary duty in the base hospital, Lieut. WILLIAM W. BURNS, Selma.

To his home and to the inactive list of the Medical Reserve Corps on account of being physically disqualified for active service, Lieut. JACOB D. STAPLES, Camp Hugh.

Arizona

To New York City, for orthopedic instruction, Capt. CHARLES T. STURGEON, Globe.

Arkansas

To Army Medical School, Washington, D. C., for a course of instruction, Lieut. JOHN F. LIEBERMAN, Pine Bluff.

To Camp Devens, Ayer, Mass., for duty, from Army Medical School, Capt. HARRY H. TOWLER, Fayetteville.

To Camp Greenleaf, Fort Oglethorpe, for a course of instruction, from School of Plastic and Oral Surgery, Washington University, St. Louis, Lieut. SIDNEY J. WOLFERMANN, Fort Smith.

To Camp Greenleaf, Fort Oglethorpe, for a course of instruction, Lieut. MARTIN V. B. WADDLE, Success.

To Camp Kelly, San Antonio, Texas, for duty, from Fort Oglethorpe, Lieut. FLOYD CLARDY, Jonesboro.

To Camp Sherman, Chillicothe, Ohio, for duty, from Army Medical School, Lieut. JAMES V. FALISI, Little Rock.

To Fort Riley, Kan., for duty with Hospital Train No. 24, Lieut. GEORGE W. EUBANKS, Wabash.

To St. Louis, Washington University, for a course of intensive training in head surgery, from Fort Riley, Lieut. JAMES W. BUTTE, Helena.

Recommending that his resignation from the Medical Reserve Corps be accepted for the good of the service, from Camp Pike, Lieut. SEABORN J. FULLER, Little Rock.

California

To Army Medical School, Washington, D. C., for a course of instruction, Lieuts. FRANK H. CHASE, Linda Vista; Charles C. Dickinson, McCloud.

To Camp Cody, Deming, N. M., for duty from Fort Riley, Kan., Lieut. HERBERT R. STOLZ, Stanford University.

To Camp Kearny, Linda Vista, California, for duty, from Camp Kearny, on the tuberculosis examining board as Contract Surgeon, Lieut. JOHN E. FAHY, Los Angeles.

To Camp Kelly, San Antonio, Texas, for duty, from Fort Oglethorpe, Lieut. MALCOLM Y. MARSHALL, Bakersfield.

To Canal Zone, to report in person to the commanding general, Panama Department, for duty, from Fort Benjamin Harrison, Ind., Lieut. FRANK H. CHASE, Los Angeles.

To Chicago, Neurological School, Presbyterian Hospital, for intensive training in brain surgery, from Orthopedic School, Boston, Capt. REXWALD BROWN, Santa Barbara.

To Fort McDowell, Calif., for duty, Lieuts. HIRAM E. MILLER, San Francisco; ELMO R. ZUMWALT, San Francisco.

To Fort Oglethorpe, Ga., for a course of instruction, Lieut. CARL W. ROBBINS, San Diego.

To Newport News, Va., Camp Stuart, for duty, from Fort Benjamin Harrison, Lieut. SMITH S. JOHNSON, San Francisco.

To report by wire to the commanding general, Western Department, for assignment to duty, Capt. ARTHUR J. WILKINSON, San Diego.

To report by wire to the commanding general, Western Department, for assignment to duty, Lieut. WALTER I. SUNBURNT, Sacramento.

To San Francisco, and report in person to the commanding general, Western Department, for duty, Lieut. CLARENCE L. BITTNER, Sacramento.

To the inactive list of the Medical Reserve Corps on account of being physically disqualified for active service, from Neurological School, Chicago, Capt. REXWALD BROWN, Santa Barbara.

Canal Zone

To Mineola, L. I., N. Y., for duty at the Concentration Camp and Supply Depot, Field No. 2, from Hazelhurst Field, Capt. EDWARD P. BEVERLEY, Balboa.

To Washington, D. C., and report in person to the Surgeon-General of the Army for temporary duty in his office, from Panama, C. Z., Lieuts. ARTHUR M. ALDEN, Culebra; GEORGE C. DUNHAM, Empire; from Fort Grant, C. Z., CLARENCE P. BAXTER, Fort Grant.

Colorado

To Camp Doniphan, Fort Sill, Okla., Thirty-Fifth Division, for duty, Lieut. ELWYN R. CLARKE, Fort Morgan.

To Camp Kearny, Linda Vista, Calif., for duty at the remount depot, from Fort Riley, Kan., Capt. ALBERT W. METCALF, Jr., Henderson.

To Camp Travis, Fort Sam Houston, Texas, for duty as a member of a board of medical officers for the special examination of a command for tuberculosis, Lieuts. BENJAMIN W. CARLSON, Denver.

To St. Louis, Washington University, for a course of intensive training in head surgery, from Fort Riley, Lieut. FRED H. CARPENTER, Denver.

His resignation to be accepted on account of being physically disqualified for active service, Lieut. THOMAS J. WEST, Denver.

Connecticut

To Army Medical School, Washington, D. C., for a course of instruction, Lieut. CORNELIUS S. CONKLIN, Ansonio.

To Camp Devens, Ayer, Mass., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, Lieut. LEONARD J. LOEWE, Higganum.

To Camp Greenleaf, Fort Oglethorpe, for a course of instruction, Lieuts. ALEXANDER B. TIMM, New Haven; OWEN O'NEILL, Willimantic.

To Camp Kelly, San Antonio, Texas, for duty, from Fort Oglethorpe, Lieut. FRANCIS J. O'BRIEN, Middletown.

Delaware

To Camp Dix, Wrightstown, N. J., Seventy-Eighth Division, for duty from Fort Oglethorpe, Lieut. JOSEPH BRINGHURST, Harrington.

District of Columbia

To Army Medical School, Washington, D. C., for a course of instruction, Lieuts. ROY T. HASKELL, Washington; for duty as assistant professor of ophthalmology and in addition to his other duties be designated as ophthalmologist to the U. S. Soldiers' Home Hospital, SAMUEL C. HENNING, Washington.

To Camp Wheeler, Macon, Ga., for duty with the Eighth Field Artillery, from Camp Robinson, Lieut. HOWARD W. BARKER, Washington.

To Fort Oglethorpe, for a course of instruction, from Allentown, Pa., Lieut. WILLIAM F. O'DONNELL, Washington.

To Havana, Cuba, for duty, Capt. EURICO CASTELLI, Washington.

To St. Louis, Washington University, for a course of instruction, Lieut. JOSEPH D. STOUT, Washington.

To be relieved from the duties assigned him by Paragraph 172, Special Orders, No. 184, Aug. 9, 1917, Lieut. WILLIAM H. HUNTINGTON, Washington.

Florida

To Camp American University, Washington, D. C., for duty with the Thirtieth Engineers from Allentown, Pa., Lieut. PAUL L. GOSS, Mulberry.

To Camp Dix, Wrightstown, for temporary duty in the base hospital, from Syracuse, N. Y., Capt. HARRY A. PEYTON, Jacksonville.

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Fort Oglethorpe, Lieut. HUGH ST. G. GEIGER, Kissimmee.

To Camp Kelly, San Antonio, Texas, for duty, from Fort Oglethorpe, Lieuts. ADAM C. WALKUP, McIntosh; LEONARD G. LARNER, Tampa.

To Camp MacArthur, Waco, Texas, Thirty-Second Division, from Fort Oglethorpe, Lieut. EVERARD BLACKSHEAR, Citra.

To Camp Sevier, Greenville, S. C., for temporary duty in the base hospital, Capt. LYSTON H. D. PIERCE, Tampa.

To Mineola, L. I., N. Y., for duty with Field No. 2, Lieut. CLAUDE V. GAUTIER, Passagrelle.

To Tenafly, N. J., for duty as registrar, with Venereal Hospital, from Fort Oglethorpe, Lieut. JOHNSON N. McCARTNEY, Melrose.

To Washington, D. C., for duty with Repair Shop Unit No. 302, for duty, Allentown, Pa., Lieut. WILLIS J. VINSON, Tarpon Springs.

Honorably discharged from the Medical Reserve Corps, on account of having accepted a commission in the U. S. Navy, from Fort Barrancas, Fla., Lieut. MARION E. QUINA, Pensacola.

To the inactive list of the Medical Reserve Corps on account of being physically disqualified for active service, from Allentown, Pa.; Lieut. OVEDIA F. GREEN, Mayo.

Georgia

To Army Medical School, Washington, D. C., for a course of instruction, Lieut. JOSEPH W. SMITH, Jr., Atlanta.

To Camp Beauregard, Alexandria, La., for temporary duty in the base hospital, from Fort Oglethorpe, Lieut. CECIL STOCKARD, Atlanta.

To Camp Greenleaf, Fort Oglethorpe, for a course of instruction, from Camp Robinson, Sparta, Wis., Lieut. CHARLES K. HOLMES, Gaines.

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Fort Oglethorpe, Lieut. JOSEPH H. MULL, Rome.

To Camp McClellan, Anniston, Ala., Twenty-Ninth Division, from Fort Oglethorpe, Lieut. IRA C. H. GARST, Carrollton.

To Camp Sevier, Greenville, S. C., for duty, from Fort Oglethorpe, Lieut. CLAUDE G. SCRUGGS, Valdosta.

To Camp Stuart, Newport News, Va., for duty, from Allentown, Pa., Lieut. MARK E. PERKINS, Millen.

To Camp Wadsworth, Spartanburg, S. C., Twenty-Seventh Division, from Camp Greenleaf, Lieut. LUCIUS P. FARMER, Spread.

To Camp Wheeler, Macon, Ga., Thirty-First Division, for duty, Lieut. FRED B. RAWLINGS, Sandersville.

To Chickamauga Park, Ga., for duty with the Eleventh Infantry, from Camp Wheeler, Ga., Lieut. EGBERT M. TOWNSEND, Tilton.

To Fort Oglethorpe, for a course of instruction, Lieut. DANIEL N. MATHESON, Atlanta.

To Fort Oglethorpe, for a course of instruction from Duval County Hospital, Jacksonville, Fla., Lieut. JAMES M. BRYANT, Savannah.

To Philadelphia, University Hospital, for a course of instruction in fractures, and on completion of this course to proceed to Anniston, Ala., Camp McClellan, for temporary duty in the base hospital, from Camp Meade, Lieut. A. NATHAN DYKES, Columbus.

Hawaii

To Rockefeller Institute, for a course of instruction, and on completion of this course, directed to proceed to his proper station, Major FREDERICK FOUCER, Honolulu.

To San Francisco, for duty, from Hawaiian Department, Capt. JOHN B. LUDY, Honolulu.

Idaho

To Camp Lewis, American Lake, Washington, Ninety-First Division, Lieut. FREDERICK W. DIDIER, Harrison.

To Fort Omaha, Neb., U. S. Army Balloon School, for duty, from Camp Lee, Petersburg, Va., Capt. FRANCIS H. POOLE, Pocatello.

Illinois

To Army Medical School, Washington, D. C., for a course of instruction, Lieuts. ALFRED E. JONES, JOSEPH H. ST. JOHN, BEVERIDGE H. MOORE, Chicago.

To Austin, Texas, Military School of Aeronautics, for duty, from Fort Benjamin Harrison, Lieut. GEORGE O. CULLI, Ina.

To Boston, Harvard University, for a course of instruction in orthopedic work, Lieut. HARRY J. FORTIN, Chicago.

To Camp American University, Washington, D. C., for duty, from Allentown, Pa., Lieut. JOSEPH C. KIMBALL, Joliet.

To Camp Custer, Battle Creek, Mich., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Benjamin Harrison, Lieut. EDWIN S. GILLESPIE, Wenona.

To Camp Grant, Rockford, Ill., for duty in the remount department, Capt. GEORGE E. BURDICK, Chicago; Lieut. MAX ROSENSTIEL, Chicago.

To Camp Greenleaf, Ga., for a course of instruction, Capt. WALTER VERITY, Chicago; Lieuts. LOUIS H. HAYES, Alton; FRANK T. DUFFY, Chicago; JOHN W. DUNN, Dieterich; JOHN G. HENSON, Wyoming.

To Camp Lee, Petersburg, Va., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Oglethorpe, Lieut. LUCIUS F. WRIGHT, Dunning.

To Camp Logan, Houston, Texas, for duty, from Allentown, Pa., Lieut. VERNE HAYS, Canton.

To Camp Shelby, Hattiesburg, Miss., for duty, Lieut. CHARLES S. KIBLER, Chicago.

To Camp Sherman, Chillicothe, Ohio, for duty from Army Medical School, Lieut. LEONARD W. WEAVER, Chicago.

To Chanute Field, Rantoul, Ill., for duty from Fort Benjamin Harrison, Capt. LORIN G. COLLINS, Chicago; Lieuts. RALPH G. CRESSMAN, Oglesby; OSCAR YARNELL, Decatur.

To Chicago, County Hospital, for a course of instruction in military roentgenology, Lieut. ARTHUR E. ROGERS, Bloomington.

To Chicago, Neurological School, Presbyterian Hospital, for intensive training in brain surgery, and on completion of this course to return to his proper station, from Fort Benjamin Harrison, Lieut. ORLANDO F. SCOTT, Chicago.

To Fairfield, Ohio, for duty on the Wilbur Wright Field, from Fort Benjamin Harrison, Lieuts. CLAIR L. STEALY, Freeport; JOEL E. TOOTHAKER, Ladd.

To Fort Benjamin Harrison, Ind., for duty with Hospital Train No. 2, Lieuts. EUGENE A. MOULTON, Chicago; for duty with Hospital Train No. 3, ROBERT R. KIRKPATRICK, Chicago; for duty with Hospital Train No. 4, THEODORE E. MILLER, Chicago.

To Fort McPherson, Ga., for duty in the base hospital, Capt. WILLIAM W. HOYT, Chicago.

To Newport News, Va., Three Hundred and Third Stevedore Regiment, for duty, from Allentown, Pa., Lieut. EARL K. LANGFORD, Chicago.

To New York City, Cornell Medical College, for a course of instruction in military roentgenology, from Fort Benjamin Harrison, Capt. BERNARD M. CONLEY, Wilmette; Lieuts. GUY M. McLEAN, Chicago; CHARLES J. DAVIS, Deerfield. To Post-Graduate Hospital, for a course of instruction in urology and dermatology, Lieut. GEORGE E. O'GRADY, Chicago.

To Panama Canal Department, for assignment to duty, from Fort Benjamin Harrison, Lieut. OSCAR W. MICHAEL, Muncie.

To Selfridge Field, Mount Clemens, Mich., for duty, from Fort Benjamin Harrison, Lieut. HARRY E. BROWN, Peoria.

To St. Louis, School of Head Surgery, Washington University, for a three weeks' course of instruction, from Fort Benjamin Harrison, Lieut. EDWIN W. HIRSCH, Chicago; from Fort Riley, HUDSON McB. GILLIS, Woodriver.

Honorably discharged from the Medical Reserve Corps, Lieut. CLARENCE J. MINER, Galesburg.

Indiana

To Austin, Texas, Military School of Aeronautics, for duty, from Fort Benjamin Harrison, Lieut. BYRON J. PETERS, Kokomo.

To Camp American University, Washington, D. C., for duty, from Allentown, Pa., Lieut. LLOYD A. ELLIOT, Elkhart.

To Camp Beauregard, Alexandria, La., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Benjamin Harrison, Lieut. CHARLES F. VOIGHT, New Albany.

To Camp Custer, Battle Creek, Mich., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Benjamin Harrison, Lieuts. HARRY H. WARD, Coalmont; JULIUS J. GROSVENOR, Richmond.

To Camp Grant, Rockford, Ill., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis from Fort Benjamin Harrison, Lieut. NOAH W. CLARK, Rossville.

To Camp Greenleaf, Fort Oglethorpe, for a course of instruction, Lieut. JOHN W. BALLARD, Logansport.

To Camp Mills, Garden City, L. I., N. Y., for duty in the base hospital, from Fort Oglethorpe, Lieut. FRANK A. BRAYTON, Indianapolis.

To Camp Pike, Little Rock, Ark., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Benjamin Harrison, Capt. ALLEN HAMILTON, Fort Wayne.

To Camp Stuart, Newport News, Va., for duty, from Allentown, Pa., Lieut. JAMES G. KIDD, Roann.

To Fairfield, Ohio, for duty on the Wilbur Wright Field, from Fort Benjamin Harrison, Lieut. CARLOS C. ROZELLE, La Grange.

To Fort Benjamin Harrison, for a special course of instruction in tuberculosis examination, Lieut. DORSEY D. METCALF, Fort Wayne.

To Fort McHenry, Md., U. S. Army General Hospital No. 2, for temporary duty, from Fort Oglethorpe, Lieut. JAMES M. SHIELDS, Seymour.

To Fort Oglethorpe, for duty as an instructor, from Fort Benjamin Harrison, Major FREDERICK A. TUCKER, Noblesville.

To Fort Riley, Kan., for duty as an instructor, from Fort Benjamin Harrison, Lieut. MAURICE H. KREBS, Huntington.

To Mineola, L. I., N. Y., for duty, from Fort Benjamin Harrison, Lieuts. WALDO C. FARNHAM, DONALD D. JOHNSTON, Fort Wayne.

To New York City, Cornell Medical College, for a course of instruction in military roentgenology, from Fort Benjamin Harrison, Lieuts.

AARON M. WINKELPLECK, Alfordsville; THOMAS W. MORGAN, Spartanburg.

To Pittsburgh, for a course of instruction on fractures, and on completion of this course to proceed to Fort Benjamin Harrison for temporary duty, from Fort Benjamin Harrison, Capt. JOHN A. MARTIN, Indianapolis.

To Rockefeller Institute, for a course of instruction, and on completion of this course to report to *Roosevelt Hospital for a further* course of instruction, from Army Medical School, Lieut. BROWN S. McCLINTIC, Peru.

To St. Louis, Washington University, for a course of intensive training in head surgery, from Fort Benjamin Harrison, Capt. GEORGE B. BREEDLOVE, Martinsville; Lieut. FRED G. EBERHARD, South Whitley.

To Walter Reed General Hospital, Takoma Park, Washington, D. C., for duty, from Gettysburg, Pa., Lieut. ARYINE E. MOZINGO, Tipton.

To Washington, D. C., for duty with Repair Shop Unit No. 303, from Fort Benjamin Harrison, Lieuts. HENLY H. HUBBARD, Boswell; *HOMER E. LINE, Chili.*

To his home and honorably discharged from the Medical Reserve Corps on account of being physically disqualified for active service, from Camp Grant, Capt. EDDIE DEB. THIXTUM, Indianapolis; honorably discharged from the Medical Reserve Corps, from Fairfield, Ohio, Lieut. EARL D. JEWETT, St. Paul.

Iowa

To Army Medical School, Washington, D. C., for a course of instruction, Lieut. JOHN E. KILEY, Valley Junction.

To Camp Custer, Battle Creek, Mich., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Benjamin Harrison, Lieut. HENRY I. McPHERRIN, Perry.

To Camp Dix, Wrightstown, for temporary duty in the base hospital, Capt. ALDEN H. HOOVER, Des Moines.

To Camp Dodge, Des Moines, for duty in connection with orthopedic work, Capt. FRANCIS LA PIANA, Des Moines; for duty, Lieut. CLYDE L. VAN PATTEN, Anamosa.

To Camp Grant, Rockford, Ill., for duty in the base hospital, Lieut. ELMER J. LAMBERT, Ottumwa.

To Camp Kelly, San Antonio, Texas, for duty, from Fort Oglethorpe, Lieut. FREDERICK E. KELLER, Huxley.

To Camp Lewis, American Lake, Washington, for duty in the base hospital, Capt. MARCUS C. TERRY, Brighton.

To Fort Riley, Kan., for duty with Hospital Train No. 25, Lieut. JOHN F. LOOSBROCK, Fort Des Moines.

To New York City and Philadelphia, for duty in connection with physical examining units, Aviation Section, Signal Corps, and on completion to return to his proper station, Major EUGENE R. LEWIS, Dubuque.

Kansas

To Army Medical School, Washington, D. C., for a course of instruction, Lieuts. EDMUND A. LODGE, Erie; RAYMOND O. DART, Kansas City; BENJAMIN F. FRAZER, Osawatomie.

To Camp Funston, Fort Riley, for duty as a member of a board of medical officers for the special examination of the *command for* tuberculosis, Lieut. CLARK W. ZUGG, Great Bend.

To Camp Meade, Annapolis Junction, Md., for duty as a member of a board of medical officers for the special examination of tuberculosis, from Camp Greene, Lieut. JACOB H. HALDEMAN, Paola.

To St. Louis, School of Head Surgery, Washington University, for three weeks' course of *instruction, from Fort* Riley, Lieuts. CLARENCE C. HARVEY, Emporia; JESSE D. COOK, Topeka.

Kentucky

To Camp Funston, Fort Riley, Kan., Eighty-Ninth Division, Lieutenant LESLIE, Lockport.

To Camp Greenleaf, Fort Oglethorpe, for a course of instruction, Lieut. HENRY C. T. RICHMOND, Louisville.

To Camp Kelly, San Antonio, Texas, for duty, from Fort Oglethorpe. Lieut. OTTO E. JOHNSON, Lebanon Junction.

To Camp Pike, Little Rock, Ark., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Benjamin Harrison, Lieut. FRANK B. DEWITT, Rockport.

To Hoboken, N. J., for assignment to duty, from Fort Benjamin Harrison, Lieut. ALBERT E. HOLMES, Louisville.

To Honolulu, Hawaii, to the Commanding General, Hawaiian Department, for duty, from Camp Funston, Lieut. THOMAS R. GRIFFIN, Somerset.

To Panama Canal Department, for assignment to duty, from Fort Benjamin Harrison, Lieut. CHARLES C. PHILLIPS, Owensboro.

To Washington, D. C., St. Elizabeth's Hospital, for intensive training in his specialty, from Fort Oglethorpe, Capt. *MALCOLM H.* YEAMAN, Henderson.

To his home and honorably discharged from the Medical Reserve Corps on account of being physically disqualified for active service, from Camp Lee, Capt. DAVID P. CROCKETT, Hardy; Lieut. MILLARD D. HOSHINS, Varilla; *to his home,* from Fort Oglethorpe, Lieut. EDWARD STUMBO; *to the inactive list of the Medical Reserve Corps,* from Fort Riley, Lieut. FINIS LONDON, Woodburn.

Louisiana

To Camp Kelly, San Antonio, *Texas, for* duty, from Fort Oglethorpe, Lieut. WILLIAM R. STRANGE, New Orleans.

Honorably discharged from the Medical Reserve Corps, from Fort *Riley,* Lieut. PRENTISS E. PARKER, Bourg.

Maine

To Camp Lee, Petersburg, Va., for duty, examining troops in nervous and mental diseases, from Allentown, Pa., Lieut. DUDLEY C. KALLOCH, Portland.

To Camp Sherman, Chillicothe, Ohio, for temporary duty in the *base hospital,* from Camp Shelby, Capts. WARREN E. KERSCHNER, Bath; from Fort Snelling, EDWARD S. ABBOT, Bridgton.

To Hoboken, N. J., for assignment to duty, from Fort Levett, Maine, Capt. FRED T. KOYLE, Fort Levett.

Maryland

To Camp Jackson, Columbia, S. C., for duty, from Fort Oglethorpe, Lieut. MILNOR BORTNER, White Hall.

To Camp Joseph E. Johnston, Jacksonville, Fla., *for duty in the* quartermaster's training camp, from Fort Oglethorpe, Lieut. JOHN M. ELDERDICE, Salisbury.

To Camp Mills, Garden City, L. I., N. Y., 41st Division, from Fort *Oglethorpe,* Lieut. *SAMUEL J. PRICE,* Queenstown, Md.

To Camp Taylor, Louisville, Ky., for duty, from Army Medical School, Lieut. SAMUEL A. WHITE, Baltimore.

To Camp Wheeler, Macon, Ga., 31st Division from Fort Oglethorpe, Lieut. RICHARD E. YELLETT, Fallston.

To Hoboken, N. J., for assignment to duty, from Fort Oglethorpe, Lieut. JOHN R. DOWNES, Preston.

To his home and honorably discharged from the Medical Reserve Corps, on account of being physically disqualified for active service, from Fort Oglethorpe, Lieuts. HARRY DIEBEL, Baltimore; from Camp Mills, JOSEPH W. LONG, Walkersville.

Massachusetts

To Army Medical School, Washington, D. C., for the required course of instruction, Lieut. ADOLPH G. SCHNACK, Cambridge Mass.

To Belleville, Ill., Scott Field, for duty, from Fort Benjamin Harrison, Lieut. DOLOR I. BEAUPRE, *Holyoke.*

To Boston, Mass., for a course of instruction in military roentgenology, Lieut. JOHN W. LEDBURY, Uxbridge; for a course of instruction in orthopedic work, Lieut. JOHN B. WEBSTER, Boston.

To Camp Custer, Battle Creek, Mich., for duty, from Army Medical School, Lieut. ROSS GOLDEN, Boston.

To Camp Devens, Ayer, Mass., for duty in the base hospital, from Fort Benjamin Harrison, Lieut. CHANNING FROTHINGHAM, Jr., Boston.

To Camp Greenleaf, Fort Oglethorpe, for a course of instruction, Lieuts. WILLIAM J. DILLON, Springfield; WILLARD P. STAPLETON, Worcester; from Camp Devens, VINCENT J. DiMEUTO, Boston.

To Camp Kelly, San Antonio, for duty, from Fort Oglethorpe, Lieut. WILLIAM F. MacKNIGHT, Fall River.

To Camp Lewis, American Lake, for duty in the base hospital and for cardiovascular examinations in the camp, Lieut. WILLIAM J. KERR, Boston.

To Hoboken, N. J., for assignment to duty, from Fort Benjamin Harrison, Lieuts. WERNER HILTPOLD, Easthampton; WILLIAM F. LEMAIRE, Lynn; WILLARD W. LEMAIRE, Worcester.

To Fort Oglethorpe, for duty *as an instructor from Fort* Benjamin Harrison, Lieut. WILLIAM R. OHLER, Brookline.

To Fort Riley, Kansas, for duty as an instructor, from Fort Benjamin Harrison, Capts. JOHN D. PETERS, *Great Barrington; for duty* with the 92nd Division, from Fort Benjamin Harrison, EDWARD B. SIMMONS, *Worcester.*

To New York City, Rockefeller *Institute, for* instruction in the therapy of pneumonia, Lieut. WARREN T. VAUGHAN, Boston.

To Philadelphia, Pa., for a course of instruction in orthopedic surgery, Lieut. MARTIN H. SPELLMAN, Whitman.

To St. Louis, Washington University, for a course of intensive training in head surgery, from Fort Benjamin Harrison, Lieut. CHARLES F. CANEDY, Greenfield.

Honorably discharged from the Medical Reserve Corps, for the good of the service, from Camp Doniphan, Lieut. JOHN H. ANDERSON, Brockton.

Michigan

To Army Medical School, for the required course of instruction, Lieut. DON C. BARTHOLOMEW, Detroit.

To Camp Greenleaf, Fort Oglethorpe, for a course of instruction, Capt. EMILE C. HOULE, Neganee; Lieuts. ROY L. LAIRD, Ann Arbor; MORRELL M. JONES, Detroit; JOSEPH G. KNAPP, Wyandotte; from School of Plastic and Oral Surgery, Washington University, St. Louis, ALBERT S. BARR, Greenville.

To Camp Lee, Petersburg, Va., for duty, from Army Medical *School,* Lieut. HAROLD E. CLARK, Detroit.

To Camp Pike, Little Rock, Ark., for duty as a member of a board *of medical officers* for the special examination of the command for tuberculosis, from Fort Benjamin Harrison, Lieut. RAY L. FELLERS, *Detroit.*

To Fort Oglethorpe, for duty as an instructor, from *Fort* Benjamin Harrison, Major SAMUEL C. GURNEY, Detroit; Capt. GEORGE S. FODEN, Highland Park.

To Fort Riley, Kan., 92d Division, *for duty* from Fort Benjamin *Harrison,* Major DAVID B. DOWNING, Detroit.

To Langley Field, Hampton, Va., for duty, from *Fort Benjamin* Harrison, Lieuts. CLAYTON G. WOODBULL, Decker; WILLIAM S. CONNERY, Detroit.

To New York City, Bellevue Hospital, for a course of instruction on fractures and upon completion of this course to proceed *to his home* and return to the inactive list of the Medical Reserve Corps, from

Rockefeller Institute, Lieut. JOHN T. HODGEN, Grand Rapids; to Cornell Medical College for a course of instruction in military roentgenology, Lieut. THEODORE KOLVOORD, Battle Creek.

To Philadelphia, Pa., for orthopedic instruction, from Army Medical School, Lieut. WILLIS K. WEST, Painesdale.

To Rockefeller Institute, for a course of instruction and upon completion of this course to report to Roosevelt Hospital for a further course of instruction, from Army Medical School, Lieut. ROBERT A. HALE, Ann Arbor.

To Selfridge Field, Mt. Clemens, Mich., for duty, from Fort Benjamin Harrison, Capt. HOWARD W. STUCH, Allegan.

To St. Louis, Washington University, for a course of intensive training in head surgery, from Fort Benjamin Harrison, Capt. WILLIAM C. McCUTCHEON, Cassopolis.

Honorably discharged from the Medical Reserve Corps on account of being physically disqualified for active service, from Camp Greenleaf, Lieut. GEORGE R. ADKIN, Grand Rapids.

Minnesota

To Camp Grant, Rockford, Ill., 86th Division, for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, Lieut. WILLIAM C. JENSEN, St. Paul.

To Camp Kelly, San Antonio, Tex., for duty, from Fort Oglethorpe, Lieut. SOLOMON F. RUDOLF, Albert Lea.

To Camp Pike, Little Rock, Ark., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Benjamin Harrison, Lieut. THOMAS G. CLEMENT, Vernon Center.

To Fort Logan H. Roots, Ark., for duty, Lieut. LEON A. WILLIAMS, Slayton.

To Fort Oglethorpe, for a course of instruction, Lieuts. AUVIGNE M. RANDALL, Ashby; KENNETH W. WILDER, Minneapolis.

To Fort Riley, Kan., for duty, Lieuts. HENRY E. DOUGLAS, Hutchinson; PIO BLANCO, Rochester.

To New York City, Cornell Medical College, for a course of instruction in military roentgenology, from Fort Benjamin Harrison; to Rockefeller Institute for instruction in therapy of pneumonia, Lieut. WALTER E. GREMPLER, Minneapolis.

To St. Louis, Mo., School of Head Surgery, Washington University, for a three week's course of instruction, from Fort Riley, Capt. OLIVER E. STEWART, Bricelyn, Lieut. FLOYD W. BURNS, St. Paul.

Mississippi

To Camp Kelly, San Antonio, Texas, for duty, from Fort Oglethorpe, Lieut. JOHN E. McDILL, Shaw.

To Camp Pike, Little Rock, Ark., for duty, from Camp Dix, Lieut. HARDIE R. DAVIS, North Carrollton.

To Camp Shelby, Hattiesburg, Miss., 38th Division from Camp Greenleaf, Fort Oglethorpe, Capt. AUGUSTUS M. HARRELSON, Newton.

To Chickamauga Park, Ga., Reorganization Camp for duty with the 6th Infantry, from Fort Oglethorpe, Lieut. JESSE D. WESTMORELAND, Taylor.

To Fort Oglethorpe, for a course of instruction, Lieut. GEORGE D. MASON, Clara.

To Jackson, Miss., for the purpose of examining applicants for appointment in the Medical Reserve Corps, and upon completion of this duty, to return to his proper station at Meridian, Miss., Lieut. INMAN W. COOPERS, Meridian.

To St. Louis, Washington University, for a course of intensive training in head surgery, from Fort Oglethorpe, Lieut. HEWITT JOHNSTON, Biloxi.

To Washington, D. C., for duty with Repair Shop Unit No. 303, from Fort Oglethorpe, Lieut. CHARLES E. LEHMBERG, Artesia.

Honorably discharged from the Medical Reserve Corps, from Camp Meade, Lieut. THOMAS W. REAGAN, Union.

Honorably discharged from the Medical Reserve Corps of the Army, from Fort Des Moines, Ia., Lieut. ROBERT L. JOHNSON, Algoma.

To his home and returned to the inactive list of the Medical Reserve Corps, from Fort Oglethorpe, Lieut. GEORGE J. MANCILL, Indianola.

Missouri

To Camp American University, Washington, D. C., for duty, from Allentown, Pa., Lieut. WILFORD A. FAIR, Pleasant Hill.

To Camp Cody, Deming, N. M., for duty, from Fort Riley, Kan., Capt. LINDAY S. MILNE, Kansas City.

To Camp Custer, Battle Creek, Mich., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Benjamin Harrison, Lieut. JAMES B. BIGGS, Bowling Green.

To Camp Funston, Kan., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, Capt. KURT STUMBER, St. Charles.

To Camp Grant, Rockford, Ill., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis from Fort Benjamin Harrison, Lieut. JACOB J. KENNEDY, Frankford.

To Camp Greenleaf, Fort Oglethorpe, for a course of instruction, from School of Plastic and Oral Surgery, Washington University, St. Louis, Mo., Capt. CHARLES A. VOSBURGH, St. Louis; for a course of instruction, Lieuts. HALBERT R. HILL, Bachelor; JOSEPH F. BREDECK, St. Louis.

To Camp Kelly, San Antonio, Texas, for duty, from Fort Oglethorpe, Lieut. JOHN D. ROBINSON, Belgrade.

To Camp Meade, Annapolis Junction, Md., for duty as members of a board of medical officers for the specical examination of the command for tuberculosis, from Camp Green, Lieut. DELANE S. CALHOUN, St. Louis.

To Camp Wheeler, Macon, Ga., for temporary duty in the base hospital, from Fort Oglethorpe, Lieut. MARTIN H. POST, St. Louis.

To Fort Logan H. Roots, Ark., for duty, Capt. WILLIAM T. J. BAILEY, Caseville.

To Fort Oglethorpe, for a course of instruction, Lieut. LUTHER H. WALLON, Summerville.

To Fort Riley, for duty with Hospital Train No. 25, Lieut. MORGAN L. CLINT, Meadville.

To New Orleans, La., Charity Hospital for a course of instruction on fractures and on completion of this course to proceed to Fort Bliss, Texas, for temporary duty, from Fort Bliss, Capt. HAROLD P. KUHN, Kansas.

To New York City, Bellevue Hospital for a coures of instruction on fractures and on completion of this course to proceed to Fort Snelling, Minn., for temporary duty in the base hospital, from Fort Snelling, Capt. ROBERT BURNS, Jr., St. Louis.

To New York City, Cornell Medical College, for a course of instruction in military roentgenology, from Fort Riley, Kan., Lieut. EVERETT R. DEWEESE, Kansas City; to Rockefeller Institute for a course of instruction in the treatment of pneumonia, and on completion of this course to his proper station, from Camp MacArthur, Lieut. HERBERT S. LANGSDORF, St. Louis.

To Philadelphia, Pa., Eddyston, Pa., New York City, Hoboken, N. J., Hastings-on-Hudson, N. Y., Bridgeport, Conn., New Haven, Conn., Hartford, Conn., Boston, Mass., Lowell, Mass., St. Albans, Vt., Albany, N. Y., Utica, N. Y., Ilion, N. Y., Watertown, N. Y., St. Louis, Mo., East Alton, Ill., Cincinnati, Ohio, for the purpose of making special inspections of the sanitary conditions in munition plants and upon completion of this duty will return to his proper station, Lieut. FRANK L. MORSE, St. Louis.

To St. Louis, Mo., Aviation Section, Signal Corps, as a member of the physical examining unit, Lieut. JOSEPH J. REILLY, St. Louis. To Washington University, for a course of intensive training in head surgery, from Fort Riley, Lieuts. JOHN R. ELLIOT, Clarksdale; Edwin C. FUNSCH, ROY JOHNSON, St. Louis.

Montana

To Camp Dodge, Ia., for duty at the remount station, Lieut. LEO C. LeCLAR, Twin Bridges.

To St. Louis, Mo., School of Head Surgery, Washington University, for a three weeks' course of instruction, from Fort Riley, Lieuts. KARL A. SNYDER, Great Falls; ROBERT L. OWENS, Hamilton.

Nebraska

To Camp Beauregard, Alexandria, La., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis from Fort Oglethorpe, Lieut. TORRENCE C. MOYER, Lincoln.

To Camp Funston, Fort Riley, Kan., 59th Division for duty, from Fort Riley, Lieut. CHARLES P. BRENN, Western.

To Camp Greenleaf, Fort Oglethorpe, for a course of instruction, Lieut. FREDERICK J. WURTELE, North Platte.

To Camp Meade, Annapolis Junction, Md., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Camp Greene, Lieut. WILLIAM N. ANDERSON, Omaha.

To Fort Leavenworth, Kan., for duty, Capt. ELLIS H. WHITEHEAD, Osmond.

To Fort Riley, Kan., for duty in the base hospital, Lieut. WILLIAM C. BARTLETT, Alma.

Nevada

To Camp Gordon, Atlanta Ga., for duty, from Army Medical School, Lieut. JAMES P. CRAWFORD, Mina.

New Hampshire

To Camp Greenleaf, Fort Oglethorpe, for a course of instruction, Lieut. GEORGE F. DWINELL, Manchester.

To Fort Oglethorpe, for duty as an instructor from Fort Benjamin Harrison, Lieut. JOHN A. DREW, Kumney.

To St. Louis, Washington University, for a course of intensive training in head surgery, from Fort Benjamin Harrison, Lieuts. JOHN J. OSTERHOUT, Keene; JOHN B. WARDEN, Whitefield.

New Jersey

To Camp Devens, Ayer, Mass., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Walter Reed General Hospital, Lieut. GRANT THORBURN, Newark.

To Camp Dix, Wrightstown, N. J., for duty, from Fort Ontario, Capt. WIDMER E. DOREMUS, Newark; Lieut. WALTER A. HICKMAN, Princeton.

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Fort Oglethorpe, Lieut. JOHN L. MEEKER, Newark.

To Camp Kelly, San Antonio, Texas, for duty, from Fort Oglethorpe, Lieut. CLARENCE LeF. VREELAND, Pompton Lakes.

To Camp Lee, Petersburg, Va., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis from Fort Oglethorpe, Lieut. HOWARD S. SMITH, Newark.

To Camp Mills, for duty to examine the troops who have not already been examined for tuberculosis and cardiovascular abnormalities, and on completion of this duty to return to his proper station, from Camp Upton, Lieut. GEORGE B. EMORY, Newark.

To Camp Pike, Little Rock, Ark., for duty as a member of a board for the special examination of the command for tuberculosis, from Camp Stuart, Newport News, Va., Lieut. WILLIAM H. HAINES, Audubon.

To Camp Upton, Yaphank, L. I., N. Y., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis,. from Walter Reed General Hospital, Takoma Park, Lieut. GEORGE B. EMORY, Newark.

To Fort Myer, Va., for duty, Capt. ROBERT E. SOULE, Newark.

To Fort Oglethorpe, for a course of instruction, Capt. GEORGE B. GALE, Newark; Lieut. JOHN L. LUND, Perth Amboy.

To New York City, Bellevue Hospital, for a course of instruction on fractures and on completion of this course to proceed to Wrightstown, N. J., for temporary duty in the base hospital, Lieut. LOUIS E. POOLE, West Hoboken.

To Tenafly, N. J., for duty as adjutant with venereal hospital, from Fort Oglethorpe, Capt. BLASE COLE, Newton.

To Walter Reed General Hospital, Takoma Park, D. C., for a special course of instruction in tuberculosis examinations, Capt. MAURICE ASHER, Newark; Lieuts. GRANT THORBURN, Newark; SAMUEL R. FAIRCHILD, Penngrove.

To Washington, D. C., for duty with Repair Shop Unit No. 302, for duty, from Allentown, Pa., Lieut. CLAUDE W. THOMAS, Woodstown.

To his home and to the inactive list of the Medical Reserve Corps on account of being physically disqualified for active service, from Camp Meade, Lieut. L. LAWRENCE H. ROGERS, Trenton.

New York

To Army Medical School, Washington, D. C., for a course of instruction, Lieuts. HARRY B. HANSEN, WILLIAM P. SMALE, New York City; from Gettysburg, Pa.; Lieut. JOSEPH PRICE, New York City; for orthopedic work, JACOB UNDANG, Brooklyn.

To Boston, Mass., and report in person to the Commanding General Northeastern Dept., for duty, from Fort Michie, Lieut. RUEL B. KARIOBE, New York City; to Boston City Hospital, for a course of instruction on fractures and on completion of this course to proceed to Camp Cody, Deming, N. M., for temporary duty in the base hospital, from Camp Bartlett, Lieut. HENRY E. McGARVEY, Bronxville.

To Camp Beauregard, Alexandria, La., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Oglethorpe, Capt. JAMES C. HARKENS, New York City.

To Camp Custer, Battle Creek, Mich., for duty, from Psychopathic Hospital, Ann Arbor, Mich., Capt. GEORGE F. MILLS, Oneida.

To Camp Devens, Ayer, Mass., for duty, from Camp Sherman, Lieuts. CHARLES E. CONGDON, Buffalo; for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Walter Reed General Hospital, Lieut. ADELBERT C. ABBOTT, Syracuse.

To Camp Greene, Charlotte, N. C., for duty, to be relieved of his *present* duties, Lieut. HERMANN ELWYN, New York City.

To Camp Greenleaf, Fort Oglethorpe, for a course of instruction, Capt. JAMES F. NAGLE, New York City; Lieuts. VINCENT J. T. O'NEILL, Highland Falls; ROWLAND P. BLYTHE, CHARLES G. DARLINGTON, GEORGE A. KOENIG, WALTER M. KRAUS, CHARLES H. NAMMACK, MILTON W. PLATT, BERNARD L. ROBINS, CORNELIUS J. TYSNO, JOHN H. WYCKOFF, New York City; WARREN C. FARGO, Warsaw.

To Camp Jackson, Columbia, S. C., for duty in the base hospital, from Camp Mills, Capt. FRANKLIN B. VAN WART, Brooklyn.

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Fort Oglethorpe, Lieuts. HENRY McI. MOORE, New York City; MACY L. LERNER, Rochester.

To Camp Kelly, San Antonio, Texas, for duty, from Fort Oglethorpe, Capt. RAYMOND F. LONGACRE, New York City; Lieut. BEEKMAN J. DELATOUR, New York City.

To Camp Lee, Petersburgh, Va., for consultation with the division surgeon and base hospital surgeon in connection with matters pertaining to nervous and mental diseases, and upon completion of this duty to his proper station, from Camp Greene, Major PEARCE BAILEY, New York City; for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Oglethorpe, Lieut. SIDNEY TRATTNER, New York City.

To Camp Logan, Houston, Texas, for duty in the base hospital, Lieut. LOUIS D. MINSK, New York City.

To Camp Meade, Annapolis Junction, for duty, from Fort Ontario, Capt. WILSON C. WOOD, Madison Barracks, N. Y.; for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Camp Greene, Capt. GEZA KREMER, New York City; Lieut. THOMAS F. ELLIS, New York City.

To Camp Mills, for duty to examine the troops who have not already been examined for tuberculosis and cardiovascular abnormalities, *and upon completion* of this duty to return to his proper station, from Camp Upton, Lieuts. HENRY C. DREW, Brooklyn; *EDWIN F.* SAMSON, New York City; for examination, Lieut. ALBERT C. MARGULIES, New York City.

To Camp Pike, Little Rock, Ark., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Benjamin Harrison, Lieut. ROBERT R. McCULLY, Auburn.

To Camp Stuart, Newport News, Va., for duty, from Allentown, Pa., Lieut. MARK F. HEALY, New York City.

To Camp Upton, Yaphank, L. I., N. Y., for duty, from Fort Riley, Kan., Lieut. ALBERT C. DURAND, Ithaca.

To Chicago, Ill., Neurological School, Presbyterian Hospital, for intensive training in brain surgery, from Orthopedic School, Boston, Mass., Major CHARLES HENNINGTON, Rochester.

To Concentration Camp, Garden City, L. I., N. Y., for duty, from Camp Mills, Lieut. ROBERT H. FOWLER, New York City.

To Fort Benjamin Harrison, Indianapolis, for the purpose of taking the examination for admission to the medical corps, and upon completion of this duty to return to his proper station, from Fort Wayne, Mich., Lieut. JOHN J. LANCER, New York City.

To Fort Oglethorpe, for duty as an instructor, from Fort Benjamin Harrison, Major FREDERIC W. LOUGHRAN, New York City; Capt. HERBERT L. CELLER, New York City; Lieut. VICTOR C. VON UNRUH, New York City; for duty with Hospital Train No. 23, Lieut. HAROLD B. JOHNSON, Buffalo.

To Fort Riley, Kansas, for duty with Hospital Train No. 24, Lieut. WILLIAM E. McCORMACK, Brooklyn.

To Fort Sill, Okla., U. S. School for Aerial Observers, for duty, from Aviation Section, Signal Corps, Pittsburgh, Pa., Lieut. EDWIN S. INGERSOLL, Rochester.

To Langley Field, Hampton, Va., for duty, from Fort Benjamin Harrison, Lieuts. WARTHER C. A. STEFFEN, College Point; EDWARD L. HAZELTINE, Jamestown.

To Mineola, L. I., N. Y., for duty, from Fort Benjamin Harrison, Lieuts. PAUL B. BETOWSKI, Bath; DANIEL M. MACDONALD, New York.

To New York City, Bellevue Hospital, for a course of instruction on fractures, and upon *completion of this course* to proceed to Fort Ontario, N. Y., for temporary duty, from Fort Ontario, Major RALPH A. STEWART, New York City. *To proceed to Camp Sherman,* Chillicothe, Ohio, *for temporary duty, Capt. CHARLES W. HOYT,* Rochester; from Rockefeller Institute, Capt. ETHAN F. BUTLER, Yonkers. *To Cornell Medical College,* for a course of instruction in military roentgenology, from Fort Benjamin Harrison, Lieut. BERNARD S. STRAIT, Penn Yan. *To Post-Graduate Hospital,* for a course of instruction in urology and dermatology, Lieuts. SAMUEL PARNASS, Brooklyn; WILLIAM G. PHILLIPS, *Brooklyn. To U. S. Army General Hospital No. 1,* for temporary duty, Lieut. ROYAL A. SCHAAF, New York City.

To Philadelphia, Pa., for a course of instruction on fractures, and upon completion of this course to proceed to Camp Jackson, for temporary duty in base hospital, from Allentown, Pa., Lieut. JOSEPH S. BALDWIN, Brooklyn.

To Pullman, Ill., for duty with Hospital Train No. 1, from Fort Benjamin Harrison, Lieut. GEORGE B. REITZ, Brooklyn.

To Rockefeller Institute, New York City, for a course of instruction, and upon completion of this course to report to Bellevue Hospital for a further course of instruction, Major GEORGE B. WALLACE, New York City. Upon completion of this course to proceed to Camp Sheridan for temporary duty in the base hospital, Capt. EDWIN W. PEET, New York City.

To St. Louis, Mo., School of Plastic and Oral Surgery, Washington University, for duty, to the military director of the school, Capt. ROBERT T. FRANK, New York City; from Fort Benjamin Harrison, Lieut. JAMES T. HARRINGTON, Poughkeepsie.

To Syracuse, N. Y., for duty as medical member of examining board, recruiting officer and temporary officer *in* charge of physical examinir unit, from Examining Unit, Aviation Section, Signal Corps, New York City, Lieut. FEDOR L. SENGER, Brooklyn.

To Walter Reed General Hospital, Takoma Park, *D. C., for* a special course of instruction in tuberculosis examinations, Capts. THEODOR J. ABBOTT, New York City; JOSEPH R. CULKIN, Rochester; STEPHEN A. MAHADY, *Utica;* Lieuts. DANIEL R. ROBERT, LOUIS D. STERN, *Brooklyn;* EDWARD P. EGLEE, Flushing; CLYDE D. OATMAN, Poolville; for duty in the urologic division, LEO C. DuBOIS, Beacon.

Honorably discharged from the Medical Reserve Corps, on account of being physically disqualified for active service; Lieut. ALBERT C. MARGULIES, Brooklyn; from Fort Benjamin Harrison, Lieut. JOSEPH T. SLONIMSKY, New York City; from Fort Oglethorpe, Lieut. JOHN W. MUNRO, Syracuse.

To his home and the inactive list of the Medical Reserve Corps, Capt. GEZA KREMER, New York City; Lieut. FRANK E. MILLER, New York City.

North Carolina

To Camp Beauregard, Alexandria, La., 39th Division, from Fort Oglethorpe, Lieut. RANDOLPH E. WATTS, Oriental.

To Camp Custer, Battle Creek, Mich., for duty, from Army Medical School, Lieut. MALTHUE R. FREEMAN, Bailey.

To Camp Jackson, Columbia, S. C., for active service, Lieut. ALEXANDER F. JONES, Ararat.

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Fort Oglethorpe, Lieut. JOHN L. MOORE, Wendell.

To Camp Lee, Petersburg, Va., 80th Division, for duty, from Fort Oglethorpe, Lieut. BENJAMIN F. CLIFF, East Flat Rock.

To Camp Meade, Annapolis Junction, Md., for duty as a member of a board of medical officers for the special examination of the command *for* tuberculosis, from Camp Green, Lieut. FREDERICK B. SPENCER, Salisburg.

To Camp Sevier, Greenville, S. C., for duty, from Fort Oglethorpe, Lieut. THOMAS J. SUMMEY, Brevard.

To Fort Oglethorpe, Ga., for the required course of instruction, Lieut. OSCAR W. KING, Mooresville.

To New York City, Bellevue Hospital, for a course of instruction on fractures, and upon completion of this course to Camp Sheridan for temporary duty in the base *hospital, from* Camp Sheridan, Capt. EVERETT A. LOCKETT, Winston-Salem.

To Walter Reed General Hospital, Takoma Park, D. C., for a course of instruction in tuberculosis examination, Lieut. JOHN DONNELL..., Charlotte.

To his home and the inactive list of the Medical Reserve *Corps, from* Camp Stanley, Leon Springs, Texas, Lieut. JAMES N. MITCHNER, Kingston.

To his home and the inactive list of the Medical Reserve Corps, on account of being physically disqualified for active service from Camp

Gordon, Lieuts. CHARLES Z. CHANDLER, Sylvia; from Camp Meade, Lieut. EDWARD S. KING, Sweethome.

Honorably discharged from the Medical Reserve Corps, on account of being physically disqualified for active service, from Camp Sevier, Lieut. JAMES M. TEMPLETON, Cary.

North Dakota

To Boston, Mass., General Hospital for a course of instruction on fractures, and upon completion of this course to proceed to Fort Oglethorpe for a course of instruction, Major ERIC P. QUAIN, Bismarck.

Ohio

To Army Medical School, for a course of instruction, Lieut. JOHN D. NOURSE, Kenton.

To Boston, Mass., General Hospital, for a course of instruction on fractures, and upon completion of this course to proceed to Camp Sherman, Chillicothe, Ohio, for temporary duty in the base hospital, Lieut. GEORGE M. LOGAN, Akron.

To Camp Custer, Battle Creek, Mich., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Benjamin Harrison, Lieuts. IVAH J. RANSBOTTOM, Coldwater; CHARLES R. DEEDS, Dalton.

To Camp Gordon, Atlanta, Ga., 82d Division, for duty, from Fort Oglethorpe, Lieut. HERMAN L. CRARY, Letart Falls.

To Camp Greenleaf, Fort Oglethorpe, for a course of instruction, Lieuts. ADOLPHUS W. FOERTMEYER, Cincinnati; HARRY E. WILSON, Martins Ferry.

To Camp Pike, Little Rock, Ark., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, Lieut. GEORGE L. HAEFELE, Cleveland.

To Camp Sherman, Chillicothe, Ohio, for duty in the base hospital, Lieut. MELVILLE D. AILES, Warren.

To Camp Stuart, Newport News, Va., for duty, from Allentown, Pa., THOMAS RICHARD KENNERDELL, Cleveland.

To Camp Taylor, Louisville, Ky., for temporary duty at the base hospital, from Fort Benjamin Harrison, Lieut. LAUREN N. LINDENBURGER, Troy.

To Canal Zone, to report in person to the Commanding General, Panama Dept., for duty, from Fort Benjamin Harrison, Indiana, Lieuts. RALPH H. SILL, Cleveland; CARLTON C. STOKES, Port Clinton.

To Chicago, Ill., Neurological School, Presbyterian Hospital, for intensive training in brain surgery, from Orthopedic School, Boston, Mass., Lieut. CHARLES M. PAUL, Cincinnati.

To Fort Benjamin Harrison, Indiana, for a course of instruction in the hospital on fractures, and upon completion of this course to proceed to Louisville, Ky., for temporary duty in the base hospital, from Camp Taylor, Lieuts. DE FNNA D. DE NEEN, Cincinnati; for a special course of instruction in tuberculosis examining, JOSEPH M. ULRICH, Akron; IRWIN W. MAYBERRY, Scott Town; for duty with Hospital Train No. 2, CLYDE K. STARTZMAN, Bellefontaine; for duty with Hospital Train No. 3, HARVEY N. TRUMBULL, Woodville.

To Fort Oglethorpe, Ga., for duty in the provisional base hospital, from Fort Benjamin Harrison, Lieuts. OTTO N. WARNER, Conneaut; for a course of instruction, FRANK B. SNODGRASS, Kenton.

To Mineola, L. I., N. Y., for duty, from Fort Benjamin Harrison, Lieuts. RUDOLPH S. REICH, JOHN W. TIPPIE, Cleveland; CLARENCE J. SCHIRACK, Coldwater; HERMAN G. ROSENBLUM, Toledo; JAMES S. MARINER, Youngstown.

To Rockefeller Institute, New York City, for a course of instruction in the therapy of pneumonia, Lieuts. HENRY J. JOHN, Cleveland; from Allentown, Pa., JOSEPH E. McCLELLAND, Cleveland.

To Selfridge Field, Mount Clemens, Mich., for duty, from Fort Benjamin Harrison, Lieut. JOHN A. TRUE, Port Clinton.

To St. Louis, Mo., School of Head Surgery, Washington University, for a three weeks' course of instruction, from Fort Riley, Lieuts. WILLIAM S. NICHOLS, Cleveland; ROY F. JOLLEY, Richwood.

To Washington, D. C., for duty as orthopedic instructor, Major HERBERT D. MADDOX, Cincinnati.

Honorably discharged from the Medical Reserve Corps on account of being physically disqualified for active service, from Camp Lewis, Capt. LOUIS L. SYMAN, Springfield.

Oklahoma

To Camp Devens, Ayer, Mass., for duty, from Army Medical School, Lieut. DAVID D. PAULUS, Oklahoma City.

To Camp Doniphan, Fort Sill, Okla., for duty, from base hospital, Fort Sill, Okla., Lieut. JOSEPH M. HANCOCK, Muskogee.

To Camp Jackson, Columbia, S. C., for duty, from Army Medical School, Lieut. PHILIP L. COULTER, Tulsa.

To Fort Sill, Okla., School of Aerial Observers, for duty with the 3d Balloon Squadron, Lieut. HENRY DeW. SHANKLE, Hastings.

To Philadelphia, Pa., University Hospital, for a course of instruction on fractures, and upon completion of this course to proceed to Fort Sam Houston, Texas, for temporary duty; from Fort Sam Houston, Lieut. ABRAHAM L. BLESH, Oklahoma City.

To his home and the inactive list of the Medical Reserve Corps, from Camp Mills, Major LEWIS A. CONNER, Coalgate; from Camp Cody, Lieut. CHARLES E. HOUSER, Vici; from Camp Bowie, Lieut. ALBERT N. EARNEST, Muskogee.

Oregon

To Army Medical School, Washington, D. C., for a course of instruction, Lieut. ROBERT A. SHERWOOD, Portland.

To Camp Beauregard, for duty as plastic and oral surgeon, section of surgery of the head, with the base hospital, Capt. JUSTIN M. WAUGH, Hood River.

Pennsylvania

To Aberdeen, Md., for duty, from Fort Benjamin Harrison, Lieut. JAMES L. JUNK, Connellsville.

To Army Medical School, Washington, D. C., for a course of instruction from Fort Oglethorpe, Lieut. SAMUEL R. SKILLERN, Jr., Philadelphia.

To Boston, Mass., City Hospital, for a course of instruction on fractures and on completion of this course to proceed to Camp Beauregard, Alexandria, La., for temporary duty, from Fort Ethan Allen, Vt., Lieut. GEORGE W. MILLER, Norristown.

To Camp Beauregard, Alexandria, La., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Oglethorpe, Lieut. WILLIAM RUOFF, Philadelphia.

To Camp Devens, Ayer, Mass., 76th Division from Fort Oglethorpe, Lieut. JOHN S. ANDERSON, Greensburg; for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Walter Reed General Hospital, Lieut. HARRISON M. STEWART, Mont Alto.

To Camp Dix, Wrightstown, N. J., for duty, from Allentown, Pa., Lieut. WALTER WHITEHOUSE, Marcus Hook.

To Camp Dodge, Des Moines, Ia., for duty, from Army Medical School, Lieut. FRANK S. MATLACK, Philadelphia.

To Camp Gordon, Atlanta, Ga., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Walter Reed General Hospital, Capt. ALBERT P. FRANCINE, Philadelphia.

To Camp Greene, Charlotte, N. C., for duty in the base hospital, from Dept. Laboratory, Atlanta, Ga., Capt. CLAUDE P. BROWN, Glen Olden.

To Camp Greenleaf, for a course of instruction, Lieuts. PHILIP L. HATCH, Coudersport; from Fort Benjamin Harrison, DANIEL E. L. STEDEM, Philadelphia.

To Camp Hancock, Augusta, Ga., Twenty-Eighth Division, from Fort Oglethorpe, Lieut. HOWARD L. FARQUHAR, Pittsburgh.

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Fort Shelby, Lieut. ADDISON M. ROTHROCK, Reading; from Fort Oglethorpe, Lieut. ISREAL P. P. HOLLINGSWORTH, West Chester.

To Camp Kelly, San Antonio, Texas, for duty, from Fort Oglethorpe, Lieuts. JOHN S. STRUTHERS, Danville; SAMUEL E. LYON, Mount Braddock; Lieuts. M. ROGERS, Philadelphia; JAMES E. JAMES, Plymouth.

To Camp Logan, Houston, Texas, Thirty-Third Division, from Fort Oglethorpe, Lieut. WALTER L. HENDERSON, East McKeesport.

To Camp Meade, Annapolis Junction, Md., for duty as member of a board of medical officers for the special examination of the command for tuberculosis, from Camp Greene, Lieut. JAMES M. McNALL, Wilkinsburg; from Fort Benjamin Harrison, Lieut. WILLIAM H. HERR, Lancaster, for duty, from Allentown; Lieut. CHARLES J. CAVANAGH, Philadelphia.

To Camp Mills, Garden City, L. I., for duty in the base hospital, Major JACK C. GITTINGS, Philadelphia.

To Camp Pike, Little Rock, Ark., for duty, from Army Medical School, Lieut. PAUL M. N. KYLE, Pittsburgh; from Fort Oglethorpe, Lieut. JAMES N. DOUGLAS, Scranton.

To Camp Stuart, Newport News, Va., for duty, from Allentown, Pa., Lieut. DWIGHT E. LONG, Freeburg; from Fort Oglethorpe, Lieuts. FRANK L. KNOX, Claysville; WILLIAM H. HAINES, Thompsontown.

To Camp Taylor, Louisville, Ky., Eighty-Fourth Division, from Fort Oglethorpe, Capt. PETER H. DALE, State College; Lieut. ARTHUR R. GAINES, Altoona.

To Fort Oglethorpe, for duty as an instructor, from Fort Benjamin Harrison, Major THEODORE B. APPEL, Lancaster.

To Chicago, Neurological School, Presbyterian Hospital, for intensive training in brain surgery, and on completion of this course to return to his proper station, from Fort Benjamin Harrison, Capt. LOUIS J. C. BAILEY, Greensburg.

To Essington, Pa., for duty, from Camp Dix, Lieut. ROBERT S. McCOOMBS, Philadelphia.

To Hoboken, N. J., for assignment to duty, from Allentown, Pa., Lieut. JOSEPH W. DENNIN, Philadelphia; from Fort Oglethorpe, Lieuts. WALTER E. LANG, Allentown; HERBERT L. RANSOM, Pittston; CONNELL E. MURRIN, Scranton.

To Mineola, L. I., N. Y., Signal Corps, Aviation School, Hazelhurst Field, for duty, from Middletown, Pa., Lieut. WILLIAM P. McINTOSH, Philadelphia.

To Newport News, Va., for duty, at the Port of Embarkation, from Fort Oglethorpe, Lieut. WILLIAM F. HARRISON, Plains.

To New York City, for the purpose of attending the meeting of the Bureau of Standards on business in connection with the Medical Department, and on completion of this duty will return to his proper station, Major DAVID SILVER, Pittsburgh. *To Bellevue Hospital,* for a course of instruction on fractures, and on completion of this course to proceed to Fort Worth, Texas, Camp Bowie, for temporary duty, in the base hospital, from Camp Bowie, Capt. JAMES G. FLYNN, Ridgway.

To Philadelphia, for duty as a medical member of the examining board and assistant to the recruiting officer from Essington, Pa., Lieut. JOHN P. GALLAGHER, Philadelphia; for a special course of instruction at the School of Plastic and Oral Surgery, from Army Medical School, Lieut. ARTHUR T. HENRICI, Pittsburgh.

To Roanoke, Va., for conference with the Virginia Committee Medical Defense, and on completion of this duty to return to his pr station in this city, Major HENRY D. JUMP, Philadelphia.

To Rockefeller Institute, for a course of instruction, and on c tion of this duty to Roosevelt Hospital for a further c instruction, from Army Medical School, Capt. JOHN F. McC

Philadelphia; Lieuts. JOSEPH G. FERNBACH, Philadelphia; ROY L. SCOTT, Sayre.

To St. Louis, Washington University, for a course of intensive training in head surgery, from Fort Oglethorpe, Lieut. THOMAS S. HICKS, Braddock; on completion of this course to report to Camp Greenleaf for a course of instruction, Lieut. WILLIAM BATES, Philadelphia.

To Walter Reed General Hospital, Takoma Park, D. C., for a special course of instruction in tuberculosis examinations, Capt. ELMER G. WEIBEL, Erie; Lieuts. RALPH E. HENRY, Erie; HARRISON M. STEWART, Mont Alto; ABRAHAM TRASOFF, Philadelphia.

To his home and returned to the inactive list of the Medical Reserve Corps, from Fort Oglethorpe, Lieuts. JOHN S. ANDERSON, Greensburg; JOSEPH F. COMERFORD, Philadelphia.

To his home and returned to the inactive list of the Medical Reserve Corps, *on account of being physically disqualified* for active service, from Fort Oglethorpe, Lieut. LEO DeL. PARRY, Rock Glen; from Walter Reed General Hospital, Lieut. FLOYD D. LOHR, Derry; from Fort Benjamin Harrison, Lieut. JOSEPH S. MURRIN, Carbondale.

Porto Rico

To Camp Stuart, Newport News, Va., for duty, from Fort Oglethorpe, Lieut. WILLIAM R. GALBREATH, San Juan.

Rhode Island

To Camp MacArthur, Waco, Texas, for duty in connection with orthopedic examinations in the division and base hospital, Lieut. JOSEPH E. RAIA, Providence.

To Walter Reed General Hospital, for a special course of instruction in tuberculosis examinations, Lieut. NORMAN B. COLE, Providence.

South Carolina

To Camp Kelly, San Antonio, Texas, for duty, *from Fort Oglethorpe*, Lieut. THOMAS C. GALLOWAY, Columbia.

To Camp Lee, Petersburg, Va., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Oglethorpe, Lieut. THOMAS O. WALKER, Greer.

To Camp Meade, Annapolis Junction, Md., for temporary duty in the base hospital, from Camp Greenleaf, Lieut. HERBERT HARRIS, Andlison.

To Camp Pike, Little Rock, Ark., for duty as a member of a board of medical officers for the special *examination* of the command for tuberculosis, from Fort Oglethorpe, Lieut. JAMES M. OLIVER, Orangeburg.

To Mineola, L. I., N. Y., for duty, from Fort Benjamin Harrison, Lieut. CHARLES C. FISHBURNE, Scotia.

Tennessee

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Fort Riley, Capt. JAMES H. SMITH, Trimble; Lieut. GRANVILLE I. WALKER, Gillases Mills.

To Camp Kelly, San Antonio, Texas, for duty, from Fort Oglethorpe, Lieut. GUY McC. REESER, JR., Church Hill.

To Camp Pike, Little Rock, Ark., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Oglethorpe, Lieut. MAURICE L. CONNELL, Ridgetop.

To Camp Upton, Yaphank, L. I., N. Y., for duty, from Army Medical School, Lieuts. GEORGE F. AYCOCK, Nashville; MANTON L. SHELBY, Woodlawn.

To Canal Zone, to report in person to the commanding general, Panama Department, for duty, from Fort Benjamin Harrison, Lieut. WILLIAM E. BOYCE, Flat Woods.

To Fort Bayaho, N. M., for duty, Lieut. FRANK B. BREWER, Nashville.

To New York City, Bellevue Hospital, for a course of instruction on fractures and on completion of this duty to proceed to Fort Niagara, N. Y., for temporary duty, from Camp Mills, Lieut. WILLIAM R. SEARS, Lebanon.

To St. Louis, Washington University, for a course of intensive training in head surgery, from Fort Oglethorpe, Lieut. DORSEY T. GOULD, Lawrenceburg.

Honorably discharged from the Medical Reserve Corps, from Camp Pike, Lieut. WILLIAM G. BUNDRANT, Lawrenceburg.

Texas

To Army Medical School, Washington, D. C., for a course of instruction, from Brownsville, Texas, Lieut. LUCIUS L. HANDLY, Houston.

To Camp Cody, Deming, N. M., Thirty-Fourth Division, Lieut. JOSEPH V. DOZIER, Menard.

To Camp Hancock, Augusta, Ga., for temporary duty in the base hospital, from Fort Oglethorpe, Capt. WALLACE RALSTON, Houston.

To Camp Jackson, Columbia, S. C., for duty, from Army Medical School, Lieut. WILLIAM L. STARNES, San Antonio.

To Camp MacArthur, Waco, Texas, for duty, Lieut. MARION M. BROWN, Mexia.

To Camp Sevier, Greenville, S. C., to report in person to the com- ing general, Thirtieth Division, for active duty, Lieut. EDWIN EVES, Galveston.

p Travis, Fort Sam Houston, Texas, for duty, Lieuts. D F. CLARK, Fentress; GEORGE W. DOUGLAS, LLEN D. WAGES, Waco.

horpe, Field Hospital Co. No. 3, for duty, from Camp ESSE C. McKEAN, Lometa.

., for transportation to France and on arrival in commanding general, American Expeditionary Forces, for duty as roentgenologist, from School of Military Roentgenology, Kansas City, Lieut. DAVIS SPANGLER, Sherman.

To San Antonio, Texas, Robert E. Green Memorial Hospital, for duty as a medical member of examining board, and as recruiting officer, from Kelly Field, Lieut. EDWARD E. COLLINS, Fremont.

To report to the commanding general, Southern Department, for assignment to duty, Capt. ROBERT H. McLEOD, Palestine; Lieuts. THOMAS R. MOREHEAD, Ben Franklin; GEORGE W. GRISWOLD, Cisco; EVERETT O. ARNOLD, Corpus Christi; JOSEPH KOPECKY, El Campo; RICHARD A. WILSON, Marfa; ALBERT A. JACKSON, Mexia.

To his home and honorably discharged from the Medical Reserve Corps *on account of being physically disqualified* for active service, from Fort Oglethorpe, Lieuts. CHARLES W. WILLIAMS, Bronte; CLARENCE L. McCLELLAND, Frawell.

Utah

To Camp Travis, Fort Sam Houston, Texas, for duty in the camp and in the base hospital and for the purpose of examining and consulting in such orthopedic cases as the commanding general of the camp may direct, Lieut. DAVID K. ALLEN, Salt Lake City.

Vermont

To Camp Grant, Rockford, Ill., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Benjamin Harrison, Lieut. GEORGE L. BATES, Morrisville.

To New York City, Cornell Medical College, for a course of instruction in military roentgenology, from Fort Benjamin Harrison, Lieut. RAY B. THOMAS, Enosburg.

Virginia

To Camp Greenleaf, Fort Oglethorpe, for a course of instruction, from School of Plastic and Oral Surgery, Washington University, St. Louis, Lieut. DORSEY C. TYLER, Richmond.

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty from Fort Oglethorpe, Lieut. HORACE T. HAWKINS, Richmond.

To Camp Kelly, San Antonio, Texas, for duty, *from* Fort Oglethorpe, Lieut. FRANK A. FARMER, Roanoke.

To Camp Lee, Petersburg, Va., for duty, Lieut. GROVER B. GILL, Tangier; for duty with the auxiliary remount station, from Camp Lee, Lieut. WILLIAM P. MERCHAUT, Manassas.

To Camp Meade, Annapolis Junction, Seventy-Ninth Division, for duty, from Fort Oglethorpe, Lieut. JAMES S. BURGER, Hopewell.

To Camp Pike, Little Rock, Ark., for duty as a member of a board for the special examination of *the command for tuberculosis, from* Camp Joseph E. Johnston, Lieut. HORACE T. HAWKINS, Richmond.

To Fort Oglethorpe, for a course of instruction, Lieut. GEORGE V. LITCHFIELD, Abingdon.

To Newport News, Va., for duty at the Port of Embarkation, Lieut. LONSDALE J. ROPER, Portsmouth.

To Staunton, Va., for the purpose of examining *applicants for* appointments in the Medical Reserve Corps, and on completion of this duty to return to his proper station, from Richmond, Major JOHN G. NELSON, Richmond; JOSEPH T. McKINNEY, Richmond.

To Walter Reed General Hospital, Takoma Park, D. C., for a special course of instruction in tuberculosis examination, Lieut. THOMAS N. DAVIS, Lynchburg.

To Washington, D. C., and report in person to the Surgeon-General of the Army for temporary *duty in his office, from Fort Randolph*, C. Z., Lieut. EDGAR A. BOCOCK, Richmond; to Army Medical School, for a course of instruction, Lieut. HARVEY R. LIVESAY.

Washington

To Camp Lewis, American Lake, Washington, for duty in the base hospital, to be relieved of his present duties, Capt. ERNEST C. WHEELER, Tacoma.

To Fort Mackenzie, Wyo., for duty from Camp Dodge, Capt. JOHN B. ROBERTSON, Tacoma.

West Virginia

To Army Medical School, Washington, D. C., for a course of instruction, Lieuts. ARTHUR N. HENSON, LAWRENCE A. PETTY, Charleston.

To Walter Reed General Hospital, Takoma Park, D. C., for a special course of instruction in tuberculosis examinations, Capts. GEORGE H. BARKSDALE, JOHN W. MOORE, Charleston; Lieut. DAVID P. SCOTT, Ashland.

To his home and the inactive list of the Medical Reserve Corps on account of being physically disqualified for active service, from Fort Oglethorpe, Lieut. ROBERT K. BUFORD, Princeton.

Wisconsin

To Camp Custer, Battle Creek, Mich., Twenty-Fifth Division, for duty, Lieut. WILLIAM C. HANSON, Racine.

To Camp Jackson, Columbia, S. C., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Oglethorpe, Lieut. LEON H. FLANCHER, Milwaukee.

To Fort Bliss, Texas, for temporary duty, from Fort Riley, Lieut. ADDISON J. PROVOST, Oshkosh.

To Fort Oglethorpe, for a course of instruction, Lieut. HERMAN A. HEISS, Madison.

To New York City, Cornell Medical College, for a course of instruction in military roentgenology, from Fort Oglethorpe, Lieut. HARRY B. PODLASKY, Milwaukee.

To his home and the inactive list of the Medical Reserve Corps, from Washington University, St. Louis, Capt. GUSTAF R. EGELUND, Sturgeon Bay; from Camp Doniphan, Lieut. GEORGE G. RUHLAND, Milwaukee.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Personal.—Dr. Nolton N. Ashley, chief of the staff of the Oakland Emergency Hospital, has resigned, and has been succeeded by Dr. Charles H. Mackey.——Drs. Henry G. Brainerd, Charles L. Allen, Thomas J. Orbison and Edward H. Williams, all of Los Angeles, are the medical members of the board of trustees of the Psychopathic Association of California, elected at its annual meeting in Los Angeles, October 22.

Anthrax.—During August and September, according to the *Monthly Bulletin* of the state board of health there were eight human cases of anthrax in the state as reported to the board, and the state veterinarian has called attention to outbreaks among animals in Yolo, San Joaquin and Stanislaus counties and in remote sections of the San Joaquin and Sacramento valleys. In Yolo for a period the water in irrigating ditches was ordered shut off to prevent the possible spread of the disease by that means. Warnings have been given in regard to the handling of sick stock and the skinning of dead animals.

COLORADO

Personal.—Dr. Raynor E. Holmes, Canon City, has purchased the Goodloe Hospital, with a capacity of twenty beds, and will conduct it as a private hospital.—Drs. Wilbur T. Little and Hart Goodloe have entered on their military duties at Fort Sill, Okla., and Fort Riley, Kan., respectively.——Dr. Frederick A. Jackson, Salida, has been appointed physician and deputy coroner of Chaffee County, during the absence of Dr. Charles S. Phalen.——Dr. George B. Gilmore has been appointed assistant health officer for West Colorado Springs.

DELAWARE

Personal.—Dr. William P. Orr, Lewes, has been placed in command of the Marine Hospital at Lewes, succeeding Dr. George G. Hart, transferred.——Dr. John W. Mullin, Wilmington, has been appointed chief of the medical staff of the Delaware Hospital.

Typhoid Fever.—October 26, there were twenty-nine cases of typhoid fever in Wilmington which are known to have originated outside of that city. In addition, there are twenty cases which have been traced to one source in Wilmington. The supply of drinking water of the city is reported to be sanitary.

ILLINOIS

Personal.—Dr. Edward A. Glasgow was elected president of the First National Bank of Mulberry Grove, November 5. ——Dr. Edgar P. Cook, Mendota, has been appointed chairman of the cooperative committee to promote the antituberculosis campaign of the State Council of Defense.

Assignments to Health Officers.—The state director of health, Dr. C. St. Clair Drake, Springfield, announces the following assignments:

Dr. Clarence W. East, Evanston, relieved as medical officer for Camp Grant Health District, and detailed to investigate poliomyelitis in Cook County, and afterward to report for special assignment.

Dr. Arthur Pearman, Rockford, medical health officer to Camp Grant Health District, Rockford.

Dr. Alexander F. Stewart, Oneida, district health officer for the Western Health District, with headquarters at Galesburg.

Dr. John A. Kappelman, Evanston, relieved as medical health officer of Great Lakes-Fort Sheridan Health District excepting special assignment relating to water supply and sewerage disposal problems in North Chicago and Waukegan, and garbage disposal at Lake Bluff and Lake Forest, and detailed as health officer of the Northeast Health District, with headquarters at Chicago.

Dr. John A. Robison, Chicago, medical health officer of Great Lakes-Fort Sheridan Health District, with temporary headquarters at Lake Forest.

Dr. Charles E. Crawford, Rockford, medical health officer of the Northwest Health District excepting temporarily the Camp Grant District, with headquarters at Rockford.

Dr. Edward M. Irwin, Belleville, medical health officer for the Scott Field Health District, including the towns of Shiloh Valley and Belleville, in St. Clair County.

Dr. Charles S. Nelson, Springfield, medical health officer of the North Central Health District, with headquarters at Springfield.

Dr. Elbert L. Damron, Effingham, district health officer for the South Central Health District, with headquarters at Effingham.

Dr. John A. M. Gibbs, Unity, medical health officer for the Southern Health District, succeeding Dr. Isaac A. Foster, New Haven.

Chicago

Children's Hospital Profits by Rummage Sale.—As a result of the four days' White Elephant Sale, held in the old Calumet Club Building, November 7 to 10, $25,369 was raised for the Children's Memorial Hospital.

Personal.—Dr. Daniel N. Eisendrath read a paper on "Why Do We Have Recurrence of Symptoms After Operations on the Biliary Tract?" at the annual meeting of the Wisconsin State Medical Society, held in Milwaukee, October 3, and also read a paper on the same subject at the annual meeting of the Southern Illinois Medical Association, held at Murphysboro, November 1.

INDIANA

Tuberculosis Hospital Site.—The Madison County Council has appropriated $10,000 for the purchase of the site for a county tuberculosis sanatorium. A farm of 92 acres near Anderson has been selected for this purpose.

Endorse Wynn's Candidacy.—The Indianapolis Medical Society, October 27, adopted a resolution endorsing the candidacy of Dr. Frank B. Wynn for a member of the board of school commissioners, and paying high tribute to the ability and attainments of Dr. Wynn.

Personal.—Dr. Henry Jameson, Indianapolis, fuel administrator for Marion County, is the first director whose appointment has been formally recorded by the state administrator. ——Major Orange G. Pfaff, Indianapolis, will not be able to accompany Base Hospital Unit No. 32, on account of an injury to his knee.

IOWA

Honor to Rosenow.—At a gathering of representative citizens of Davenport, November 9, honor was rendered to Dr. E. C. Rosenow, in appreciation of his assistance during the recent epidemic of infantile paralysis in Davenport. An inscribed scroll stating the appreciation of his work, signed by the mayor and representatives of civic, social and medical organizations, was presented to Dr. Rosenow.

KENTUCKY

Personal.—Dr. Thomas F. Cleaver, Lebanon, sustained painful injuries when an engine ran into his automobile on a grade crossing, October 19.——Dr. John W. Gilbert, Lawrenceburg, while burning charcoal in a cistern, was overcome by the gas, and managed to get out of the cistern, but fell, sustaining painful wounds of the forehead.

MAINE

Health Department Reorganized.—The old state board of health, which was created in 1885, has been superseded by the state department of health, which was created by an act passed by the seventy-eighth legislature. Dr. Leverett D. Bristol has been appointed commissioner of health, and the state has been divided into health districts, each in charge of a district health officer.

Health Council.—The governor has nominated the following as the new Maine health council: John J. Ryan, Lewiston, probation officer; Eugene A. Cloutier, Lewiston, associate probation officer; Mrs. George F. French, Portland; Drs. Joseph E. Odiorne, North Whitefield; Robert J. Aley, Orono; Hiram W. Ricker, Poland; Sylvester J. Beach, Augusta, and Joseph B. Drummond, Portland.

MASSACHUSETTS

Personal.—Dr. Joseph A. Smith, police surgeon of Worcester, has resigned to enter the army service.——Physicians of Haverhill visted Georgetown, October 22, to pay their respects to Dr. Richmond B. Root, who celebrated the fiftieth anniversary of his entrance into the practice of medicine on that day.

Orthopedic Hospital for Boston.—The Order of Elks has made an offer to the city council of Boston to erect, for the federal government, an orthopedic hospital to cost $250,000, on the site of the old Parker Hill reservoir, provided the city will sell the site for $40,000. This is expected to be the first reconstruction hospital in the United States for crippled soldiers and sailors.

MICHIGAN

Tuberculosis Foes Meet.—At the annual meeting of the Michigan Anti-Tuberculosis Association, held in Battle Creek, Dr. William De Kleinie, Flint, was elected president, Drs. John H. Kellogg, Battle Creek, and Christopher G. Parnall, Jackson, vice presidents, and Dr. Henry J. Hartz, Detroit, secretary.

Personal.—Dr. William F. English, Saginaw, a member of the state board of health, will be stationed permanently at Battle Creek to assist the military authorities and the state board of health in the campaign to protect the health and morals of the soldiers at Camp Custer.——The University of Michigan has accepted the resignation of Dr. Claudius B. Kinyon, Ann Arbor; for twenty years professor of obstetrics and gynecology in the Homeopathic Medical School, and has appointed Dr. Theron G. Yeomans, St. Joseph, his successor.

Antituberculosis Notes.—Muskegon, Ottawa and Allegan counties are considering the proposition to build and operate a cooperative tuberculosis sanatorium.——At the meeting of the Michigan Anti-Tuberculosis Society, October 30, it was recommended that the state establish sanatoriums for men rejected from the National Army on account of tuberculosis who could be restored to health.——It is proposed to erect a joint tuberculosis sanatorium, to cost about $100,000, for the use of the six counties of Oakland, St. Clair, Livingston, Macomb, Washtenaw and Lapeer.——Members of the Delta County Board of Supervisors have approved the establishment of a joint tuberculosis society with Menominee, Dickinson and Iron counties.

MINNESOTA

Smallpox at Hamline.—There are now five cases of smallpox at Hamline University, Minneapolis. Practically all the students have been vaccinated.

Faculty and War Work.—Fifteen men and two women of the University of Minnesota faculty have been granted leave of absence by the board of regents to engage in war work for the government.

Navy Hospital School Opened.—October 29, the Navy Hospital Corps Training School of the University of Minnesota was formally opened, with an initial attendance of 100 Hospital Corps men from the Navy. The staff is supplied by the University of Minnesota Medical School.

Personal.—Dr. Jacob H. Stewart, St. Paul, was found unconscious on Summitt Avenue, St. Paul, November 1. He had apparently suffered a slight concussion of the brain.——Dean T. Frankforter of the College of Chemistry of the University of Minnesota was relieved of his administrative duties at his own request, October 25, and reduced to the rank of professor.——Drs. Clarence E. Lum, Duluth, and Walter Courtney, Brainerd, were severely injured by falling through a trap door at a hunting lodge in Ottertail County, October 25.——Dr. Walter R. Ramsey, St. Paul, will head a medical mission to France in January. Dr. Ramsey will take the place of Dr. Julius P. Sedgwick of the university, who is now in France organizing the work among children in the fighting zone.

MISSOURI

Tuberculosis Ward Opened.—The entire north wing on the fourth floor of the Kansas City General Hospital, which was formerly occupied as nurses' headquarters, is being remodeled, and will be used as a tuberculosis ward, accommodating about sixty-five patients.

Personal.—Dr. George P. Pipkin, Kansas City, who has been in Colorado for the past five months in search of health, has returned greatly improved.——Dr. Louis E. Newman, St. Louis, who had five ribs fractured in a collision between his automobile and a coal wagon, is reported to be convalescent.

Medical Inspection of Schoolchildren.—While medical inspection of the schoolchildren of Kansas City has been suspended by the municipal authorities for lack of funds, a public spirited citizen, who desires to remain incognito, has agreed to pay the expenses of the work for three months. Five physicians, five dentists and ten nurses will form the staff of inspectors and begin work at once under the supervision of the Hospital and Health Board.

Society Inaugurates Movement for Combining Laboratories of State Board of Health and State University.—At a recent meeting of the Boone County Medical Society, to which the members of Audrain, Gallaway, Cole, Cooper, Howard and Randolph County Medical Societies had been invited, resolutions were adopted in which were set forth the advantages of free laboratory work being done by the state university. It was proposed that the people of Missouri be made acquainted with the beneficial results of such a procedure, and that the next legislature be urgently requested to make the necessary appropriation for rendering the resolution effective.

First Class in Oral and Plastic Surgery Completes Course.—The first class of students from the Officers' Medical Reserve Corps ordered to take the course in oral and plastic surgery in the special school established at Washington University Medical School by the Surgeon-General of the Army has completed its course, the members, numbering thirty-seven, returning to their respective posts. The second contingent has reported for the course which began, November 5. There are thirty-five men in this class, of which twenty-seven are surgeons and eight are dentists. This course differs from the first in that it offers, in addition to oral and plastic surgery, surgery of the cranium and brain. Dr. Robert T. Frank, New York, is acting as military director.

Must Clean Up Vice Conditions.—Kansas City must clean up vice conditions at once or be quarantined against army camps is the edict of United States government officials. Mr. Henry F. Bart, in charge of the law enforcement department of the War Department, recently visited Kansas City and found conditions so demoralizing for the soldiers who visit the city from nearby camps that he ordered the immediate closing of all immoral houses, prohibiting women from soliciting on the street, and keeping all liquor away from soldiers. While the saloons have generally obeyed the law to refuse liquor to soldiers, the rooming houses and some hotels have permitted drinks to be served to soldiers in private rooms. The police department and the prosecuting attorney have promised to wipe out these vicious influences.

NEW HAMPSHIRE

Students Must Have Physical Examination.—The trustees of the New Hampshire College, Durham, have decided that hereafter every student on entering college must pass a physical examination.

Personal.—The residence of Capt. Charles A. Lamson, M. R. C., U. S. Army, at New London, was destroyed by fire, October 2.——Dr. Patrick J. McLaughlin, Nashua, has been appointed physician of Hillsboro County, succeeding Dr. Charles E. Congdon, who is in war service.

NEW JERSEY

Hospital Burns.—The Trenton Municipal Hospital, containing fifty-five patients, was burned, November 6. All the inmates escaped or were carried to places of safety, some of them being taken from the second floor by the staff of nurses, who for a times worked single handed in the mission of rescue. The loss is placed at $40,000.

Tri-County Physicians Elect Officers.—At the annual meeting of the Tri-County Medical Society, which includes, Cumberland, Salem and Gloucester counties, held at Millville, October 30, the following officers were elected: president, Dr. Harry A. Stout, Wenonah; vice presidents, Dr. Joseph N. Husted, Woodstown, and John H. Moore, Bridgeton, and secretary-treasurer, Dr. George E. Reading, Woodbury.

NEW YORK

Personal.—Dr. and Mrs. William N. Miller, Croton-on-Hudson, were seriously injured in a collision between their automobile and another car at Harmon-on-Hudson.——Dr. Marcus E. Babcock, Bath, was struck by an automobile, October 28, and received a severe wound of the scalp.——Dr. George F. Reusch, Franklinville, has accepted a position with the mining company at Virginia, Minn.

Commission Discusses Care of Insane.—The Hospital Development Commission, which was created by the last legislature to form a plan for the systematic enlargement of state institutions for the insane and feebleminded, recently conducted a hearing at the New York Academy of Medicine. The commission has presented the results of an investigation of the institutions for the care of the insane in this state and in Massachusetts, as well as in other states. The immediate establishment of psychopathic hospitals, especially in New York City, was urged. These hospitals should be employed simply as clearing houses to determine which persons might be restored by a short term of treatment and which should be sent to the state hospitals. The opinion was expressed that the care of the insane is properly a state function and should be kept so, as municipal governments were too likely to shift.

New York City

Woman Head of Parole Board.—Dr. Katherine B. Davis has been appointed chairman of the parole board by Mayor Mitchell. The term of office runs for ten years, with a salary of $7,500 a year.

Anniversary Address.—The anniversary address of the New York Academy of Medicine was delivered, November 15, by Dr. Henry Fairfield Osborn, L.L.D., president of the National Museum of National History, on "The Origin and Nature of Life."

Jamaica Hospital Opens Laboratory.—The Jamaica Hospital, Borough of Queens, announces that it has just completed the equipment of a roentgen-ray laboratory and is ready to render prompt and efficient service to the physicians of Queens who refer cases for roentgen-ray examination.

New York's Quota of Doctors for War Service.—The New York Chapter of the Red Cross has issued a statement asserting that when the base hospital units now awaiting a call to duty are in service, New York City will have sent 200 physicians and surgeons and more than 500 Red Cross nurses for war hospital work. The Presbyterian, Roosevelt, New York Port-Graduate, and the New York hospitals are already in service abroad. The other units, Bellevue, Mount Sinai, Herman and Metropolitan hospitals, have long been in readiness.

Medical Services Discuss War Problems.—Under the auspices of the New York State Committee, Medical Section of the Council of National Defense, a rally was held on the evening of November 9 at the Waldorf-Astoria, at which the heads of the medical services of the British and American governments discussed the probable requirements of the medical service. Dr. George D. Stewart presided at the meeting, and the principal addresses were made by Col. Sir Berkeley Moynihan, Major George W. Crile, Cleveland, and Dr. Franklin H. Martin, Chicago.

City Food Cabinet Organizes.—City Market Commissioner Henry Moschowitz has organized a cabinet of advisers drawn from the various city departments to consider the city's new undertaking of buying and selling food and fuel to the people. Work has been assigned to various city departments. The health department has as its task to make a study of wholesale and retail prices of essential commodities and the relation of these prices to the factors of distribution of trade. The Department of Public Charities is to study the relation of present prices to income. The members of this cabinet are to hold a conference each week to discuss ways and means of conducting their campaign to control, if possible, the high cost of living.

PENNSYLVANIA

Hospital Endowed.—The George F. Geisinger Memorial Hospital, Danville, built at a cost of $600,000 has now been endowed by Mrs. Geisinger for $1,000,000. A Scranton trust company has been named as trustee, the local board of trustees having been asked to resign.

Personal.—Dr. W. Rowland Davies, Scranton, has been elected president of the Craftmen's Club.——Dr. Adolph Koenig, Pittsburgh, October 1, was reappointed a member of the State Bureau of Medical Education and Licensure.——Dr. Adam L. Kotz, Easton, has resigned from the staff of St. Luke's Hospital, South Bethlehem, and has been appointed pathologist for the Easton Hospital.——Dr. Henry L. Orth, for twenty-seven years superintendent of the State Lunatic Hospital of Harrisburg, has resigned his position, to take effect as soon as his successor can be appointed.——Dr. Harvey L. Gerberich, Lebanon, was operated on in the Good Samaritan Hospital, in that city, and is reported to be convalescent.——Dr. Daniel Frederick, Ashley, who was operated on for appendicitis in St. Francis' Hospital, Pittsburgh, November 7, is reported to be doing well.

Philadelphia

Ambulance for Jefferson Base Hospital.—The West Philadelphia Auxiliary No. 4 of the American Red Cross presented a new field hospital ambulance to Base Hospital No. 38 of the Jefferson Medical College Hospital, November 7.

Reception to Moynihan and Crile.—At the stated meeting of the Club of Physicians in Philadelphia, November 7, the scientific business of the meeting was omitted on account of the reception to Sir Berkeley Moyihan, R. A. M. C., and Major George W. Crile, M. R. C., U. S. Army.

Plant Oak in Honor of White.—October 26, Arbor Day, in the presence of a notable group of representatives of business, professional and city life of Philadelphia, a red oak tree was planted in Rittenhouse Square in honor of the late Dr. William White, surgeon, author and nature lover.

Personal.—Dr. W. Wayne Babcock has been appointed chief surgeon of the base hospital at Fort McPherson, Atlanta, Ga.——Dr. Clarence P. Franklin, adjutant of the Allentown training camp, has been promoted from major to Lieutenant-Colonel.——Dr. Richard M. Pearce, professor of research medicine, University of Pennsylvania, has been made director of the recently established bureau of medical service of foreign commissions of the American Red Cross.——Dr. Edward A. Schumann has been elected lecturer on obstetrics in the Jefferson Medical College.——Dr. Mary D. Ridgeway, Germantown, was seriously burned, October 17, by the explosion of a lamp.——Dr. Hubley R. Owen has been given an indefinite leave of absence as chief of police surgeons of Philadelphia. Dr. Owen is an officer of the Medical Reserve Corps, and is connected with the Jefferson Hospital Unit.

School of Oral Surgery Opens.—November 10, Provost Smith of the University of Pennsylvania announced that a new course for army dentists and surgeons had been established at the Evans Dental Institute, Fortieth and Spruce streets, under the direction of Dr. Charles K. Turner, dean of the dental school.——Thirty-two advanced students, who are not only practicing physicians and surgeons, but who are at present actively engaged as officers of the Medical and Dental Corps of the Army, have been detailed to Philadelphia for the school. The course will continue during the period of the war. While the University Dental School has been designated as the headquarters of the course, some of the branches and laboratory work are being done at the Jefferson Medical College, Jefferson Hospital, Baugh Institute of Anatomy of the Jefferson College, Medico-Chirurgical Hospital, Philadelphia General and the Pennsylvania.——The commissioned officers sent to the school from the United States Dental Corps are: surgeons: Major E. J. Johnson, Capts. R. E. Balch, Carl Eggers, A. P. Roope, R. C. Wiggon; Lieuts. Ivan R. Burket, Bernard Friedlaender, S. D. Gleeton, C. W. Hoffman, R. M. Kleckner, F. Koontz, A. J. McCracken, W. H. Maley, J. W. Means, Samuel Oast, Jr., Howard Schriver and E. M. Vaughan. Dental surgeons: Lieuts. Vincent E. D. Bragg, R. S. Catheron, H. O. Cowles, F. H. Cushman, H. T. Hinrici, W. H. Hynard, C. J. Meyer, G. C. Parry, S. D. Ruggles, W. J. Scruten, I. E. Smith, J. D. Stone, C. W. Swing, C. E. Waters, J. B. Williams and P. J. Wumkes.

CANADA

Officers Wounded.—The following officers of the Canadian Army Medical Corps were recently reported wounded: Lieut.-Col. Anson S. Donaldson, Calgary, Alta.; Capts. James E. Bloomer, Moose Jaw, Sask.; J. Harold Jones, Vancouver, B. C.; Richard W. Kenny, Winnipeg, Manit.; Robert Mackenzie, Vancouver, B. C., and James Moore, Listowel, Ont.

Medicated Wines.—The Ontario License Board is instituting an active campaign against the "medicated wines." According to an amendment to the Patent Medicine Law recently passed at Ottawa, the board can now proceed with prosecutions under the Ontario Temperance Act, which carries a maximum penalty of $1,000 fine. It is understood that the board will proceed direct against the manufacturers and not the druggists.

Notification of Venereal Diseases.—The Board of Health of Toronto, through Dr. Charles J. C. O. Hastings, will ask the Ontario Board of Health to have all persons with venereal disease placed under quarantine, as is the case with all other communicable diseases. They will also seek legislation to provide for any one suspected of being infected undergoing an examination, and, if found diseased, quarantined, the board of health to have the final decision in case of dispute.

Canadian War Cripples.—Douglas C. McMurtrie in *The Survey*, Nov. 3, 1917, gives an account of the work done by the Military Hospitals Commission and allied organizations and officials in Canada for the training of soldiers crippled in the war. This work is now well organized in Canada and decided progress is being made. McMurtrie describes particularly the work in Alberta in the Ogden Military Convalescent Hospital, near Calgary, and also at Edmonton, where well equipped institutions are carrying on this work.

Fee-Splitting in Toronto.—Dr. D. J. Gibbs-Wishart, president of the Academy of Medicine, Toronto, took occasion to rap fee-splitting in his presidential address before that body:

"It is a frankly dishonest transaction which stamps as a fraud the practitioner who demands his pound of flesh." He stated he was credibly informed that men in Toronto had endeavored to solicit the operative work of practitioners on the frankly stated basis of a fifty-fifty division of the fee. He, even—specialist in nose and throat—had been personally solicited by a general practitioner to state what percentage he might expect to receive on referred cases.

Scarcity of Doctors in Canada.—Dr. John W. Edwards, ex-member of parliament, Cataraqui, Ont., says that medical students should be exempted from the military service. Medical officers point out that the public does not realize the scarcity of doctors in Canada at the present time. It is understood that the government intends issuing authority to the exemption boards to allow medical students to continue their studies, in view of the fact that the War Office has sent back to Canada to finish their course second and third-year men of Queen's, Toronto and other medical colleges, who were serving in various capacities overseas.

Cancer in Canada.—Dr. Charles J. C. O. Hasting, M. O. H., Toronto, estimates there are between 7,500 and 8,000 deaths from cancer in Canada every year, and the majority of these, 80 to 90 per cent., are of persons over 40 years of age. Three quarters of those lives might be saved by early diagnosis and proper treatment. He sounds a note of warning to the public and says that as there is no known medical cure for cancer there is therefore no worse criminal than the man who advertises to sell a cure for cancer (or consumption), as he is robbing the victims of their only chance for recovery—early eradication, radium or roentgen-ray treatment.

Hospital News.—Some time ago the Hamilton (Ont.) City Council appropriated $60,000 to $70,000 for remodeling the administration building of the Hamilton City Hospital, but had held back the money. Last week a conference took place between the hospital governors and the board of control, but they failed to come to an agreement as to the absolute necessity of the alterations at the present time.——The Military Hospitals Commission of Canada has decided on the immediate erection of a convalescent home for returned soldiers at London, Ont. Provision will be made for 300 beds, and arrangements will be made later on to expand to a capacity of 600 beds. The Ontario government will bear a substantial proportion of the cost of construction.

Medical Inspection of Schools in Toronto.—The system of medical inspection of schoolchildren now in operation in Toronto provides for inspection in the separate (R. C.) schools as well as the public schools, and for all the year round, instead of for ten months of the year, as formerly. Dr. Marchant B. Whyte, who was superintendent of the Isolation Hospital, has been placed in charge of the work under Dr. Charles J. C. O. Hastings, the former being director of medical services. Under the arrangement the health physicians employed in the schools are required to carry out the duties of medical officers of health, each being assigned a district—the city having been divided into several health districts, five in number, and under this arrangement, likewise, the public school nurses have been incorporated into the general public health nursing system of the city.

Personal.—Capt. John M. Adams, C. A. M. C., who has been overseas for two years, has been recalled to Ottawa for special duty in the department of documents.——Major Andrew Macphail has arrived in Montreal from overseas.——An escaped prisoner from Germany has brought word of the Hon. Dr. Beland, formerly postmaster-general of Canada. He is in good health, but has lived regularly in prison since June last. He is allowed out twice weekly under guard. He gives his medical services freely among the British prisoners and maintains a kitchen at his own expense, and is a very efficient cook. Dr. Beland was not told of the death of his wife until three days thereafter, apparently so that he would not have a good excuse to ask to go to her funeral.——Dr. William H. Hattie, Halifax, N. S., was elected president of the Canadian Public Health Association at its recent meeting.——Dr. Frederick S. Minns, who was acting medical inspector in chief of the board of education in Toronto when it was transferred to the Department of Public Health, has resigned.——Drs. Norman E. McKay, M. O. H., Halifax, N. S., and Napoleon Boucher, M. O. H., Montreal, Que., have been members of a special committee under the food controller, inquiring into the milk supply of Canada.——Capts. Charles A. Temple and William J. Clark and Major W. Harley Smith, Toronto, who have been in England for two years, have returned.——Lieut.-Cols. Irving H. Cameron, Toronto, Clarence L. Starr and John D. Courtnay, Ottawa; Major Donald McGillivray, Toronto, and Dr. Robert B. Wilson, roentgen-ray expert, Montreal, have started from Halifax to make an official visit of inspection of all the military hospitals of Canada from coast to coast.——Capt. H. A. Simkins of the Spadina Military Hospital, Toronto, has been transferred to England.——Dr. J. Gordon Gallie, Toronto, has resumed practice after service abroad.——Capt. Andrew S. Moorhead, Toronto, is now doing surgery in France under Lieut.-Col. Herbert A. Bruce, Toronto.——Capt. Roland W. Young, Oshawa, Whitby Military Hospital, has been transferred to the Toronto Military Base Hospital.——Major Andrew Macphail, Montreal, editor of the *Canadian Medical Association Journal*, has gone to visit his old home in Prince Edward Island.

GENERAL

Correction.—At the Physicians' Club banquet to Dr. Billings, described last week, it was stated that Governor Lowden was introduced by Dr. A. M. Corwin and that Dr. Arthur O'Neil acted as toastmaster. Dr. A. Augustus O'Neil acted as toastmaster and introduced Governor Lowden.

Correction.—In publishing the list of chiefs of the medical service in the cantonment hospitals in THE JOURNAL for Oct. 20, 1917, Major William S. Bigelow of Boston was given as the chief of the service of Camp Cody, Deming, N. M. This should be Major Edward B. Bigelow of Worcester, Mass.

Paul Jones Club Officers.—At the annual meeting of the Paul Jones Club, Sons of the American Revolution, held at Portsmouth, N. H., November 7, Dr. Henry I. Durgin, South Eliot, Me., was elected president, and Drs. William O. Junkins, Eugene B. Eastman, Portsmouth, and Fred S. Cowle, Portsmouth, were elected members of the board of managers.

Ohio Valley Physicians Elect Officers.—At the nineteenth annual meeting of the Ohio Valley Medical Association, held in Evansville, November 7, the following officers were elected: president, Dr. J. Rawson Pennington, Chicago; vice presidents, Drs. Walter F. Boggess, Louisville, Ky.; Meyer L. Heidingsfeld, Cincinnati, and Virgil H. Moon, Indianapolis, and secretary-treasurer, Dr. Benjamin L. W. Floyd, Evansville (reelected).

Eye, Ear and Throat Men Meet.—At the twenty-sixth annual meeting of the American Academy of Ophthalmology and Oto-Laryngology, held in Pittsburgh, October 29 and 30, the following officers were elected: president, Major Allen Greenwood, M. R. C., U. S. Army, Boston; vice presidents, Drs. Virginius Dabney, Washington, D. C.; Frank R. Spencer, Boulder, Colo., and W. Likely Simpson, Memphis, Tenn.; secretary, Dr. Lee Masten Francis, Buffalo, and treasurer, Dr. Secord H. Large, Cleveland.

Bequests and Donations.—The following bequests and donations have recently been announced:

University of Pennsylvania, $600,000 from the executors of the will of Eckley B. Coxe; of which $500,000 is to be used for the Unversity Museum, and $100,000 for the pay of professors and keepers.

St. Luke's Hospital, Bethlehem, a gift of a ward, costing $90,000, from the Bethlehem Steel Company, October 18.

The Board of School Commissioners, Indianapolis, his medical laboratory for the use of physicians and others needing information, and the Presbyterian Board of Missions, his instrumental and surgical equipment by the will of Dr. John Kolmer.

St. Bartholomew's Clinic, New York, $10,000; the Morristown (N. J.) Memorial Hospital, $100,000; Germantown Dispensary and Hospital, $100,000; St. John's Guild, New York, $50,000, and Babies Hospital and St. Mary's Free Hospital for Children, New York, each $100,000 by the will of Mrs. Mary Warden Harkness.

St. John's Guild and Hebrew Orphan Asylum, New York, each $500, by the will of Joseph Morningstar.

Augustana College, Rock Island, Ill., his library, by the will of Dr. Carl Oscar Bernhardi, Rock Island.

FOREIGN

De Quervain Succeeds Kocher.—F. de Quervain, now professor of surgery at the University of Basle, has accepted a call to the medical faculty of Berne as successor to Kocher.

Jadassohn Called to Succeed Neisser.—J. Jadassohn, who has been professor of dermatology at the University of Bern since in the nineties, and is said to have been practically the founder of dermatology in Switzerland, has now gone to Breslau to take the chair left vacant by the death of his old teacher, Neisser, some months ago. He was born not far from Breslau, in 1863.

Beretta Prize for Milan Physicians.—Dr. A. Beretta of Milan bequeathed to the city of Milan a fund of $40,000, the income of which is to be awarded as a biennial prize for the best work on clinical medicine or pathologic anatomy done during the two years by some physician who has resided in the province of Milan for at least five years, but has not been in practice longer than twelve years. The money prize is to be accompanied with a gold medal.

Memorial to Gutierrez of Madrid.—A statue of Gutierrez, Count of San Diego, was recently unveiled on the grounds of the Rubio Institute at Madrid, three years after the death of this leader in gynecology in Spain. Among the speakers, Cortezo, president of the Academia de Medicina and editor of the *Siglo Medico*, classed Gutierrez with Letamendi and Cajal as Spain's great modern trio. He remarked further that the fame of the practitioner is ephemeral, even the best beloved, but a monument prolongs it and thus makes up in part for the inadequate compensation which the fees for his visits represent in return for the persevering devotion and self abnegation which the practice of medicine signifies.

Deaths in the Profession Abroad.—Sir David Caldwell McVail, Glasgow, Scotland; L.F.P.S. (Glas.), 1866; L.R.C.P. (Edin.), 1866; M. B. University of Glasgow, 1876; aged 72; formerly professor of clinical medicine in St. Mungo's College, Glasgow; physician to the Glasgow Royal Infirmary; Crown member for Scotland of the General Medical Council; a member of the Court of Glasgow University, since 1891; a prolific writer on the mechanism of respiration and diseases of the respiratory organs; died at his home in Glasgow, November 4.——**E. Huet**, one of the pioneers in electrology in France, aged 57. He had charge of the electrotherapeutic department at the Salpêtrière, and the account of his work and honors is practically the history of electrodiagnosis during the last twenty-five years.——**Lieut.-Col. F. E. Viana**, professor of surgery at the Medico-Military School at Mexico City.——**P. Malerba**, research worker and professor of physiologic chemistry at the University of Naples, aged 68.——**D. Sangrador** of Madrid, killed in a railroad accident while on his way to the recent medical congress at Valladolid.——**J. Rambousek**, professor of factory hygiene at the University of Prague, and an authoritative writer on industrial poisonings.

LONDON LETTER

London, Oct. 23, 1917.

The War

MINISTRY OF HEALTH POSTPONED

The prime minister, Mr. Lloyd George, received a deputation from the joint committee of approved societies and the conference of the Amalgamated Society of Industrial Assurance, representing about 12,000,000 insured persons. The objects of the deputation were: 1. The early establishment of a ministry of health on lines satisfactory to national health insurance organizations. 2. The early passage into law of a bill for the simplification of insurance administration. 3. The financial readjustment of national health insurance by a further grant. The premier said that the exchequer was not in a position in the middle of a great war to make the same promises in regard to insurance or any other social projects that it could very well make in days of peace. Our energies and our thoughts had been taken away from projects for the amelioration of the condition of the people to the terrible demands made on us in the defense of our liberties. The drain on our resources was unparalleled, and we were not at the end of the charge on our national wealth. He wished he could predict that we might soon see the end of it, but the task which the nation had taken in hand must be accomplished. Otherwise not merely the power and prestige of this nation were broken, but its future was pretty hopeless. We must husband our resources and incur no obligations beyond the strictest and sternest necessities of the hour, and when demands were put forward for improvements here and there, his answer would be, "Concentrate on victory." For the moment every claim on the exchequer must be considered in the light of the terrible possibilities of the war; and when it was over, in a freer and happier atmosphere we could begin to rebuild, reconstruct and regenerate. As to the bill for a ministry of health, Mr. Lloyd George said he was the last person to contend that it was not an urgent measure. We had to repair the ravages of the war. Stricter attention to the health of the community and to the saving of life by that means was one of the most efficient and surest methods of attaining that end. The damage would be great, even if the war was arrested now. The losses would be beyond count; and we should have to devote resolution, courage and readiness to find an agreement which this war had disclosed rather than seek for a point of controversy—we should have to apply the whole of that new spirit to proposals of this kind. Otherwise we should never repair within our day, nor within the day of our children, the ravages of this great war; but if we did concentrate in that spirit we should not merely clear the débris of war, we should not merely restore, but we should build something stronger, grander and on a firmer foundation than we had ever witnessed. He was certain that in one form or another we must drastically reform the administration of our health laws. There were conditions that were incompatible with health. It was a scandal that a nation which had shown such capacity for meeting great emergencies should have lethargically tolerated conditions of that kind. It was regrettable that people capable of the sort of explosive energy which this country had put forth in two or three years should have allowed slums, misery, and wretchedness and squalor to drain the land. We wanted people who enjoyed liberty to be fit to defend it, and that was one of the problems of the future.

THE MEDICAL TREATMENT OF INVALIDED SOLDIERS

The Army Council has issued revised instructions relating to the continued treatment and training of soldiers discharged from the army on medical grounds. Two categories of patients are contemplated in these instructions: (1) soldiers who at the actual time of their discharge require further treatment, and (2) soldiers who at some time after their discharge are found to require further treatment. This category is confined to men suffering from ailments arising from wounds or injury sustained during military service. As a general rule, the patients to whom these instructions apply will be those suitable for treatment as outpatients in hospitals, because army regulations in force already provide that so long as inpatient treatment is required, soldiers shall not be discharged from hospital. It is foreseen, however, that in certain special cases, as in tuberculosis or paraplegia, further inpatient treatment may be necessary. The further treatment thus to be afforded will be available at military Red Cross hospitals through agency of the local war pensions committees. In order that the local committees may efficiently carry out the duties devolving on them, they are to be furnished with cards, recording all relevant information relating to men about to be invalided out of the army. These cards will indicate whether or not further treatment is needed, and, if so, where it may be obtained. The committees will also be empowered to appoint hospital visitors, to visit and confer with the hospital authorities—or the medical authorities at command depots and camps—responsible for men about to be invalided out. In addition to treatment, special courses of technical training may in many cases be desirable. Patients for treatment in the second of the two categories described above must themselves make application in the first instance to the local committees. After ascertaining the eligibility of the applicant, the committee will send him to a military hospital for examination. The hospital will furnish a card, as described above, giving authority for the further treatment of the applicant.

FOOD ECONOMY

Sir Arthur Yapp, president of the Y. M. C. A., has undertaken the direction of a new food economy campaign, which is necessary in view of the dearth of many of the principal foods. Next month a flood of oratory is to be let loose throughout the country. A committee of experts in the food controller's department is working out a scientifically graded scheme of rationing. Taking into consideration the available supplies of food and the needs of our allies, they are seeking to find out exactly what each man, woman and child ought to have according to age and occupation and other relevant circumstances. As soon as they have reached decisions, the scale of consumption which they recommend will be made known. The rationing will be for all essential foods. It will be our task to see that the scale is observed. In addition it will be necessary to ask people occasionally to make a definite sacrifice and for a time to go without some particular thing altogether. Sir Arthur Yapp is endeavoring to establish a league or committee of national safety to bring home to the people that our national safety and the allied cause generally depend on the extent to which we economize in food consumption. The first members of the league will be asked to do everything possible to educate others. They will be asked to pledge themselves to live within the scale of rations laid down and to avoid waste. It is hoped to evolve a scheme to keep in touch with members so that once a month points for use in the campaign can be sent to them.

THE NATIONAL HEALTH IN 1916

The report for 1916 of Sir Arthur Newsholme, medical officer of the Local Government Board, has just been issued.

A review of the national health of the present time is rendered exceptionally difficult by the disturbances of population due to the war and to the gigantic new industries which have been created. So far as ordinary infectious diseases are concerned, with the exception of measles, the record of 1916 has remained favorable. There have been no cases of cholera. The tuberculosis work of local authorities during the year has been further restricted by the war. One of the most urgent of after-war problems will be to secure the early resumption and extension of this work, particularly in regard to the provision of greatly increased hospital accommodation for persons with advanced cases of consumption. The reduction in the number of births emphasizes the importance of saving child life and of improving the health of all survivors. Sir Arthur Newsholme considers that there is no insuperable difficulty in reducing the total deaths in childhood to half their present number. During 1916 the rate of infant mortality was the lowest on record. Owing to a large proportion of health officers having been released for military service, an increasing number of women physicians have been appointed for public health work, the depletion of the services having become serious. Unless considerable readjustments are made, more officers cannot be spared for the army consistently with the public safety. The staffs of inspectors of nuisances had also been greatly depleted, and many untrained men and women are performing duties formerly in the charge of trained men. It is not surprising that under these conditions, outbreaks of infectious diseases in a few instances have not been promptly controlled, and that, especially in regard to smallpox, enhanced risks have been, and continue to be, incurred owing to the inexperience of the local officers. A large part of the time of those medical inspectors who are not on military duty is taken up in emergency work arising out of the foregoing considerations. Health officers and sanitary inspectors remaining on civil duty have done admirable work in assisting less experienced temporary colleagues in other districts. In a not inconsiderable number of instances, one officer has acted for several areas in addition to his own.

PARIS LETTER

PARIS, Oct. 18, 1917.

The War

RESULTS OF ANTITYPHOID AND ANTIPARATYPHOID VACCINATION OF THE SOLDIERS DURING THE WAR

An interesting communication on this subject was read by Prof. H. Vincent at a recent meeting of the Académie des sciences. He said that in the present war, during the winter of 1914-1915, a very severe, rapidly progressing epidemic had made its appearance. Because of the exigencies of war, preventive vaccination could not be made effective at the front during that period. A less serious recurrence of paratyphoid took place during the fall of 1915. Since then the armies at the front have enjoyed an unusually good state of health. Typhoid and paratyphoid have existed only in a very slight degree, in spite of the presence of the aggravating conditions of exceptional severity brought about by a violent and prolonged war; by the mobilization of large numbers of troops, such as have never been observed before in any war; by the constant arrival of new troops; by the close contact of many men, thus increasing the danger of direct and indirect contact through the agency of the sick, as well as by carriers; and by the flies and the continual contamination of the soil.

The wholesale vaccination of the troops at the front was commenced in February, 1915. Since the beginning of the war the laboratory of the army has sent to the front 5,513,073 doses of vaccine. Before the war and since the year 1911, 20,000 soldiers have been vaccinated against typhoid and paratyphoid A and B with mixed or triple vaccine; 200,000 others have been vaccinated against typhoid only. At the present time, thanks to this active immunization, these diseases can be considered as having been practically vanquished. From 6.12 in November, 1914, 7.24 in December, 1914, and 7 in January, 1915, per thousand men, the number of cases dropped rather suddenly to 4.3, 2.49 and 1.6. In August and September, 1915, the morbidity (paratyphoid predominant) rose to 2.47 and 2.65, but since then it has diminished more and more. During February, 1916, the percentage of cases per thousand was less than 1, and this percentage has been maintained. In 1917, the monthly rate was: 0.1, 0.048, 0.025, 0.028, 0.036, 0.064, 0.068 and 0.063 per thousand. As for the mortality, from the fastigium of the 1914-1915 epidemic (November to March), the curve descended almost vertically to the present time. The vaccination by two injections is responsible for this remarkable recession in the number of cases and deaths, and the mortality is now so low that one is obliged to evaluate on the basis of 100,000. Even when we reduce to that scale, the percentage is often fractional. In 1917, it has been successively 0.6, 0.5, 0.5, 0.1, 0.3, 0.6, 0.4 and 0.3 per hundred thousand.

The value of this specific prophylactic measure cannot, in fact, be determined precisely. If the morbidity and mortality of these typhoid diseases as observed from November, 1914, to January, 1915, had been maintained, one could estimate, on the basis of 4 or 5 million soldiers having been sent to the front during the thirty-eight months of the war, that the number of cases of typhoid would have exceeded a million, with 145,000 deaths. This is not taking account of the aggravating influences obtaining during the war and the unusual weather conditions of the fall months of the three years during which this war has been waged; consequently, this preventive vaccination may be credited with having been of immense economic value to the army as well as to France as a whole. Taking for comparison the health of the French army before the war, as set forth in the official statistics for the year 1911 (the last published), it will be seen that at present the number of cases of typhoid fever occurring in the armies at the front are more than seven times less numerous, and that the number of deaths is 8.5 times less numerous than during peace times.

SHELL FRAGMENT IN THE LEFT AURICLE

At a recent session of the Académie de médecine, Dr. Le Fort reported an observation made on a wounded soldier from whose left auricle he extracted a piece of shell the size of a pea. Of the six walls of the left auricle, only one is accessible, the postero-inferior, the narrow space bounded by the pulmonary veins, the auricular appendage and the auriculoventricular vessels. The shell fragment had been fixed with the fingers in a fold of the auricular wall; two loops of thread were passed at the base of the fold. Then the auricle was incised with a bistoury, the fragment extracted and the threads tightened. Complete hemostasis was effected. The patient died on the fourth day. The necropsy showed that the sutures had held perfectly, that there had been no hemorrhage in the pericardium, and no blood clots were found in the heart. The patient was 45 years of age, and he had recovered from a pulmonary affection shortly before he was wounded. The intrapleural space was entirely obliterated. The heart was small and fatty, with fatty perinephritis of the right kidney, slight hydronephrosis of the left, etc. Dr. Le Fort has thus far performed seven operations for the extraction of foreign bodies from the heart, and four pericardial extractions with one death and ten recoveries.

Repression of Public Drunkenness

October 1, a law, dealing with the repression of public drunkenness and the supervision of saloons, was promulgated. This law imposes on persons found in a manifest state of drunkenness on the streets a fine of from 1 to 5 francs for the first offense. The second offense is punishable by from one to three days' imprisonment, and a third offense, when occurring within the first twelve months, is punishable by imprisonment for from six days to one month or a fine of from 16 to 300 francs. Any person who is convicted twice may be deprived of his electoral and civic rights for two years. The law fixes an analogous penalty for such dealers as shall serve liquors to minors (under 18), and dealers who are fined more than once will be liable to closure of their establishments for a year or more. The sale of alcoholic liquors on credit is interdicted. The law forbids the employment of females under 18 years of age in retail liquor establishments, unless they are members of the proprietor's family. Dealers who encourage debauchery shall be imprisoned for from six days to six months, and shall forfeit their political rights for five years. Their establishments shall be closed permanently.

Treatment of War Fractures

At one of the recent sessions of the Société de chirurgie of Paris, Dr. Heitz-Boyer, chief of the surgical clinic of the Faculté de médecine de Paris, described the organization and method of procedure of the Fracture Center at Châlons-sur-Marne, of which he is director. This center was established for the following reasons: (1) to assure patients, whose condition often demands many months of hospital residence, of continued care under conditions which must obtain if the surgeon is to assume full responsibility; (2) to provide that the care is always given in a center of this kind properly equipped from the point of view of the necessary material organization, apparatus and procedure; (3) to institute such care as early as possible, endeavoring to keep in mind the military as well as the surgical needs; (4) to assure the evacuation of these patients at the earliest possible time to the next unit formation within the same surgical group.

From the application of these principles has been born the special surgical "bone group" in each army, consisting of three grades or divisions, comprising the principal formations situated in the rear of the lines where operations are performed. Farther back in the interior are two branches, the first known as the second hospital, where the discharged patients, or those who are out of danger, are hospitalized until such time as the wounds have healed and the bones have united; and a second, known as the division of physiotherapy where the convalescents and those who are to be discharged from the army on account of disability receive such care as will restore to them as much function as their injury permits. Therefore, the treatment of the wounded is always under the surveillance and direction of a single responsible head. All records are carefully kept and interchanged, so that complete observations may be made, and the value of different procedures employed by the single units may be compared. Finally, from a material point of view, each group can be so well equipped that all kinds of work can be done, the equipment sufficing to take care of the wounded in the different stages of their illness. The apparatus accompanies the wounded into the different relays of the entire course. The results obtained by Heitz-Boyer in his center, where he has treated, since April, nearly 700 cases of fracture, more than 100 of these involving the thigh, have been so good that the value of this team-work method is fully attested.

New School for the Reeducation of Disabled Soldiers

The president of the republic recently visited a new school for the vocational reeducation of the mutilated, founded by the Union of Foreign Colonies in France in the Ferme de Champagne at Juvisy-sur-Orge for the benefit of war victims. The new school was founded exclusively for the benefit of mutilated or wounded agriculturists. It includes sections for general training, horticulture, nurseries, agricultural mechanics and automobile traction. Since the opening of the school, 550 patients have been admitted. A large number have been returned to their homes, properly benefited; for the others, lucrative positions have been obtained by the union. The principal workers in establishing these foundations, in which cooperated American, English, Dutch, Norwegian, Russian and other committees, constituting the Union of Foreign Colonies, are: Mm. Ascher, L.-V. Benet, L. Kone and B.-J. Shoninger, vice presidents.

The Bread Card and the Composition of Bread

Commencing October 15, a rigorous bread card régime was instituted. The maximum quantity of bread allowed for the weekly consumption of each individual was fixed on the following basis: for persons from 1 to 6 years of age, 300 gm. per day; more than 6 years of age, 500 gm. In addition, a flour ration of 50 gm. per day is provided for infants under 3 years of age; on the other hand, a supplementary ration, not exceeding 200 gm. per day, is allowed for all persons who shall make satisfactory declaration to the effect that such addition is indispensable to their nourishment. A second supplementary ration, not to exceed 200 gm., is allowed to persons engaged in hard work, and whose food consists largely of bread.

The composition of bread provoked an interesting discussion in a recent session of the Académie de médecine. The following resolutions were adopted: (1) the miller must grind only grain which is sound, free from foreign bodies and altered grains, that is, good and not damaged grain; (2) the percentage of the boltage cannot be uniform; it necessarily must vary with the quality of the grain, as determined by the weight of a hectoliter (2¾ bushels); (3) acting on the directions so far received, it seems that the present regulations in vogue have brought about the distribution of bread which has in a certain number of cases caused some illness; (4) the method of making bread with lime water, besides having many advantages, does not seem to cause any inconvenience from the health standpoint; (5) in regard to substitutes for cereals, it is very desirable to use rice in the French diet as much as is possible. Rice flour, as well as barley, rye, buckwheat and corn flour can be added to wheat flour for bread making. If well prepared, these flours do not give rise to any untoward effects.

Association News

THE CHICAGO SESSION

Local Committee on Arrangements for the Chicago Session of the American Medical Association

The following constitute the Local Committee on Arrangements for the session of the American Medical Association to be held in Chicago, June 10-14, 1918: Drs. Ludvig Hektoen, chairman; Charles J. Whalen, secretary; W. A. Pusey, John V. Fowler, Hugh T. Patrick, M. L. Harris, Charles F. Humiston, J. B. Herrick and Frank Billings.

Marriages

Lieut. Philip Emerson Thomas, Jr., M. R. C., U. S. Army, Camp Beauregard, Alexandria, La., to Miss Louise Walls of Holly Grove, Ark., October 28.

Samuel Lutz Zurmehly, M.D., Rushsylvania, Ohio, to Miss Ethel Long of Kingston, Ohio, at Chillicothe, Ohio, October 26.

Major Arthur Wells Elting, M. R. C., U. S. Army, Albany, N. Y., to Mrs. Francis W. Rawle of Bryn Mawr, Pa., October 25.

Walter Scott Patterson, M.D., Butler, Pa., to Miss Gertrude Connors of Penn Township, at Butler, October 24.

John Thomas Sullivan, M.D., Milwaukee, Wis., to Miss Lona Chapman of North Fond du Lac, Wis., October 27.

August Edward Witzel, M.D., Utica, N. Y., to Miss Helen Marguerite Van Alstyne of Ilion, N. Y., October 24.

Robert Morton Manson, M.D., San Leandro, Calif., to Miss Madeline Strohl of Oakland, Calif., October 31.

John C. Reed, M.D., Duquesne, Pa., to Miss Lillian Bennethum of Harrisburg, Pa., October 24.

Peter Burrell Mulligan, M.D., Hazleton, Pa., to Miss Helen Leonard of Camden, N. J., recently.

Audley Durand Stewart, M.D., Rochester, N. Y., to Miss Jane Walker Russell of Chicago, recently.

Walter Martin Skallerup, M.D., Walker, Iowa, to Miss Belle Forrester Black of Chicago, June 27.

Pattison Albert Waters, M.D., Monte Vista, Colo., to Miss Ethel Keen of Denver, October 7.

Deaths

Newell Bly Burns, M.D., North Wilmington, Mass.; Harvard Medical School, 1909; aged 35; a Fellow of the American Medical Association, and a member of the National Association for the Study and Prevention of Tuberculosis and the American Sanatorium Association; assistant superintendent and physician to the North Reading (Mass.) State Sanatorium for Tuberculosis; instructor in pulmonary diseases in Tuft Medical School, Boston; died in the sanatorium, October 27, from rheumatic endocarditis.

Harris Gray Sherman, M.D., Cleveland; College of Physicians and Surgeons in the City of New York, 1880; aged 61; a Fellow of the American Medical Association, and a member of the American Academy of Ophthalmology and Oto-Laryngology, and American Ophthalmological Society; a specialist on diseases of the eye; first medical inspector of schools of Cleveland; at one time president of the Cleveland Chamber of Commerce; died in Charity Hospital, Cleveland, October 30, from pneumonia.

Francis L. Springer, M.D., Newport, Del.; University of Pennsylvania, Philadelphia, 1877; aged 63; formerly a Fellow of the American Medical Association; a member of the Delaware State Medical Society, and its president in 1912; for nine years trustee of the poor, and once a member of the visiting staff of the State Hospital, Farnhurst; for several terms physician of New Castle County; died suddenly at his home, October 24, from cerebral hemorrhage.

Lieut. George Walter H. Conrad, M. R. C., U. S. Army, Philadelphia; Hahnemann Medical College, Philadelphia, 1913; aged 29; a specialist on diseases of the eye, ear, nose and throat; who had been on duty at Fort Benjamin Harrison, Ind., until August 27, when he was transferred to the aeronautical school at Austin, Texas; died in the Army Base Hospital, San Antonio, Texas, October 30, from abscess of the brain.

John C. Webster, M.D., Lafayette, Ind.; Rush Medical College, 1870; aged 76; a Fellow of the American Medical Association; formerly president of the Indiana State Board of Medical Registration and Examination; consulting physician to St. Elizabeth's Hospital, Lafayette; died, November 11, from the effects of carbolic acid accidentally self-administered, in mistake for liquid petrolatum.

Jefferson A. Davis, M.D., Kansas City, Kan.; Medico-Chirurgical College of Kansas City, Mo., 1902; aged 54; a Fellow of the American Medical Association; for eight years coroner of Wyandotte County, Kan., and formerly police surgeon of Kansas City, Kan.; died in St. Margaret's Hospital, Kansas City, Mo., October 7, from heart disease.

Andrew Jackson Hall, M.D., Natchez, Miss.; Bellevue Hospital Medical College, 1879; aged 78; formerly a Fellow of the American Medical Association; vice president of the Mississippi State Medical Association in 1892; a member of the staff of the Natchez City Hospital since 1889; a Confederate veteran; died in New Orleans, October 21.

Horace Edward Bunce, Jr., M.D., Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1900; aged 47; formerly a member of the Medical Society of the State of Pennsylvania; a member of the medical staff of the Jones and Laughlin Mills, Pittsburgh; died at his home, October 28, from septicemia.

George L. Saunders, M.D., Columbus, Ohio; Ohio State University, Columbus, 1908; aged 43; a member of the Ohio State Medical Association; formerly a member of the staff of the Ohio Hospital for Epileptics, Gallipolis; died in Grant Hospital, Columbus, October 29, from disease of the intestine.

John Milton Dexter, M.D., New York City; College of Physicians and Surgeons in the City of New York, 1894; aged 49; formerly a member of the Medical Society of the State of New York; was run over and killed by an automobile, near his home, November 1.

Albert Nathan, M.D., Charleston, S. C.; Medical College of the State of South Carolina, Charleston, 1909; aged 31; a member and once secretary of the South Carolina Medical Association; died in Boston, October 22.

Paul S. Morrison, M.D., Bancroft, Kan.; Ensworth Medical College, St. Joseph, 1909; aged 33; for several years a druggist and physician of South St. Joseph, Mo.; died in a hospital in Atchison, Kan., November 2.

A. C. McNutt, M.D., Bucyrus, Ohio; Starling Medical College, Columbus, Ohio, 1856; aged 89; surgeon of the Eleventh Ohio Volunteer Infantry during the Civil War; died at his home, October 16, from uremia.

Abraham L. Lehman, M.D., Philadelphia; Medico-Chirurgical College of Philadelphia, 1899; aged 62; a pioneer of the Coeur d'Alène district; died in the Providence Hospital, Wallace, Idaho, October 21.

William Albert McCallie, M.D., Knoxville, Tenn.; Vanderbilt University, Nashville, Tenn., 1876; aged 65; formerly a member of the Tennessee State Medical Association; died at his home, October 18.

James H. Dobbins, M.D., Bellefonte, Pa.; University of Pennsylvania, Philadelphia, 1849; aged 90; formerly a member of the Medical Society of the State of Pennsylvania; died at his home, recently.

Dennie Daniel Trotter, M.D., Madison, Ga.; Atlanta, Ga., School of Medicine, 1912; aged 28; formerly a member of the Medical Association of Georgia; died in a hospital in Atlanta, October 16.

Decatur H. Burk, M.D., Warner, Okla.; Medical College of Georgia, Augusta, 1889; aged 67; formerly a member of the Oklahoma State Medical Association; died in Muskogee, Okla., October 24.

John Kolmer, M.D., Indianapolis; Jefferson Medical College, 1894; aged 51; a Fellow of the American Medical Association; a well known surgeon of Indianapolis; died at his home, October 21

John Craig Johnstone, M.D., Lawton, Okla.; St. Louis University, 1912; aged 4; formerly a member of the Oklahoma State Medical Association; died in Blackwell, Okla., October 7, from diabetes.

James M. Bartholow, M.D., Urbana, Ill.; Rush Medical College, 1871; aged 70; a member of the Illinois State Medical Society; a veteran of the Civil War; died at Champaign, Ill., October 8.

James A. Summers, M.D., Johnson City, Tenn.; College of Physicians and Surgeons, Baltimore, 1874; aged 69; died at his home, August 4, from dysentery and laryngeal tuberculosis.

Rudolph Myers, M.D., Huntingdon, Pa.; Bellevue Hospital Medical School, 1863; aged 77; a Fellow of the American Medical Association; died at his home, August 24, from toxic myocarditis.

Edward Johnson, M.D., Columbus, Neb.; Medical School of Maine, Portland, 1883; president of the First National Bank of Columbus; died in the Clarkson Hospital, Omaha, October 27.

Newton C. Davis, M.D., Kingman, Kan.; Homeopathic Hospital College, Cleveland, 1884; aged 61; formerly a member of the Kansas Medical Society; died at his home, about October 25.

Samuel A. Orentreich, M.D., Denver; University of Krakow, Austria, 1890; died in Detroit, October 23, from the effect of poison, self-administered, it is believed, with suicidal intent.

Robert Lee Ray, M.D., Monterey, Tenn.; University of Tennessee, Nashville, 1892; aged 52; a Fellow of the American Medical Association; died in his office, October 29.

Isaac B. Gallup, M.D., Willimantic, Conn.; Philadelphia University of Medicine and Surgery, 1869; aged 72; died at his home, August 2, from carcinoma of the bladder.

Levi A. Horn, M.D., Austin, Pa.; University of Louisville, Ky., 1894; a member of the Medical Society of the State of Pennsylvania; died at his home, about August 15.

Samuel O. Knapp, M.D., Frankfort, Ind.; Medical College of Ohio, Cincinnati, 1884; aged 59; died in Mulberry, Ind., September 20, from chronic interstitial nephritis.

Charles Z. Ellis, M.D., Berkeley, Calif.; California Eclectic Medical College, Los Angeles, 1891; aged 54; died in Berkeley, October 16, from carcinoma of the stomach.

F. N. Sheppard, M.D., Riverside Manor, Md., American College of Medicine, Philadelphia, 1865; aged 78; died at his home, near Crumpton, Md., October 14.

Andrew N. Falkenstein, M.D., Glen Rock, Pa.; College of Physicians and Surgeons, Baltimore, 1887; aged 63; died at his home, October 19, from nephritis.

Henry T. Fullerton, M.D., Kenton, Tenn.; Missouri Medical College, St. Louis, 1866; aged 77; died at his home, September 4, from cerebral hemorrhage.

Charles C. Dalton, M.D., Wiota, Wis.; Bennett Medical College, Chicago, 1903; aged 39; died in Madison, Wis., September 15, from pneumonia.

Thomas C. Van Tries, M.D., Bellefonte, Pa.; University of Pennsylvania, Philadelphia, 1868; aged 38; died in Pittsburgh, August 1, from pneumonia.

John G. Rogers, M.D., Cherrygrove, Tenn.; Vanderbilt University, Nashville, Tenn., 1875; aged 78; died at his home, July 14, from nephritis.

Merriken B. Lukens, Atlanta, Ga. (license, Georgia); a practitioner since 1871; aged 83; died at the home of his niece in Atlanta, October 22.

John R. Bartlett, Burlison, Tenn. (license, Tennesse, 1889); aged 61; a practitioner since 1880; died at his home, July 28, from angina pectoris.

Joseph George Church, M.D., Shenandoah, Pa.; University of Pennsylvania, Philadelphia, 1887; aged 52; died at his home, October 19.

Jesse B. Mitchell, Sneedville, Tenn. (license, Tennessee, 1889); aged 76; died at his home, August 22, from cerebral hemorrhage.

Joseph James Harrison, M.D., Loudon, Tenn.; University of Nashville, Tenn., 1854; aged 83; died at his home, October 25.

Charles Dingee, M.D., Burlington, N. J.; University of Pennsylvania, Philadelphia, 1887; died at his home, October 10.

Joseph Lewandowski, M.D., Boston, Mass.; University of Krakow, Austria, 1894; aged 53; died at his home, October 23.

Oran A. Dean, M.D., South Haven, Mich.; University of Buffalo, 1868; died at his home, October 19.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

IODEOL AND IODAGOL

Report of the Council on Pharmacy and Chemistry

Iodeol and Iodagol (formerly called Iodargol) are products of Viel and Company, Rennes, France, widely advertised in this country by David B. Levy, Incorporated, New York. The claim made for both preparations is that they depend on "colloidal iodin" for their action. They are put up in a number of forms, for instance:

"Iodeol Ampoules each containing 1 c.c. (20 centigrammes colloidal iodin in an oily vehicle)."

"Iodeol External, containing 50 per cent. colloidal iodine."

"Iodagol Ampoules, each containing 2 c.c. (50 centigrammes colloidal iodine in an oily vehicle)."

The claim is, that, the iodin being in the colloidal state, it has the properties of elementary iodin and thus the preparations may be used in concentrations and under conditions which would make the use of free iodin impossible. The products have been extensively and extravagantly advertised for use in a wide range of conditions. Thus Iodeol has been proposed in the treatment of:

"Pulmonary Tuberculosis"
"Laryngeal Tuberculosis,"
"Glandular Tuberculosis"
"Tuberculosis of the Bones"
"Pneumonia, Broncho-pneumonia, and Congestive Conditions"
"Whooping Cough, Influenza, Asthma"
"Typhoid Fever"
"Syphilis"
"Obesity".

Iodagol, which is for external use, has been advised in the treatment of:

"Gonorrhea and its Sequelæ"
"Cystitis"
"Tetanus"
"Wounds complicated by gaseous gangrene"
"Burns"
"Old Suppurations, ulcers, abscesses, etc."
"Articular rheumatism"
"Abscess Alveolar"
"Pyorrhea Alveolaris"
"Stomatitis (Canker-Sores)."

Nearly two years ago the American agents requested the Council to consider Iodeol and Iodagol for admission to New and Nonofficial Remedies. The information submitted in regard to their character and composition was vague and indefinite, the pharmacologic information practically nil and the clinical data as voluminous as it was unconvincing.

On the basis of chemical, pharmacologic, bacteriologic and clinical investigation carried out under the direction of the referee and a study of the submitted evidence, the referee reported:

1. Iodeol and Iodagol do not contain the amount of iodin claimed.
2. The iodin is not present as elementary iodin, but instead the preparations behave similarly to the well-known organic iodin compounds such as iodized fats.
3. The therapeutic claims made for the preparations are exaggerated and unwarranted.

In view of his findings he recommended that Iodeol and Iodagol be declared inadmissible to New and Nonofficial Remedies for conflict with Rules 1 and 2 (misleading statements regarding composition and identification) and Rule 6 (unwarranted therapeutic claims). The Council adopted the recommendation of the referee, directing inclusion of the full report in the annual Council reports after submission to the manufacturer, and recommending publication of an abstract of this report in The Journal.

This report was brought to the attention of the American agent, David B. Levy, Inc., and through them to the French manufacturers, E. Viel and Company. The manufacturers have intimated that they will not file a reply to the report. The firm of David B. Levy, Inc., has decided to sever its connection with these products and to discontinue their sale.

W. A. Puckner, Secretary.

Referee's Report

Iodeol and Iodagol were submitted to the Council nearly two years ago as "electro-colloidal iodine" and with the claim that they produced all the antiseptic and other effects of ordinary iodin without any of its side actions. The referee has done much work on the subject, conducted a large amount of correspondence and has contended with long delays. He feels that the consideration of these products should be brought to a conclusion and accordingly he submits this report of their consideration. The following is a summary of the report, which is appended:

I. Discrepancy in Iodin Percentage.—The examination at the Chemical Laboratory of the American Medical Association, as well as that of the referee, shows that the various samples of Iodeol and Iodagol examined contained a little less than one-half of the total iodin claimed. These facts were reported to the American agent. After a lengthy delay a reply was received which presented a double excuse: (1) that the full amount of iodin had been added, whatever had become of it later; (2) that the claims were made for "colloidal iodin" and that this is not elementary iodin in the colloidal state, but a preparation of iodin containing only 50 per cent. of real iodin. Neither explanation can be taken seriously, as they are obvious quibblings. The referee concludes that the preparations are falsely labeled as to iodin content.

II. Nature of the Iodin Compound in Iodeol and Iodagol.—In the information sent the Council, Iodeol and Iodagol were defined as "A suspension of electro-chemical colloidal iodin in a vehicle of purified oil." Numerous inquiries have failed to elicit more specific information from the manufacturer or his agent. The statement of composition can mean only that the preparations contain free iodin (but in colloidal form) suspended in oil. No evidence to substantiate this claim has been submitted. (There is evidence that the preparations contain colloidal particles, but it does not indicate if this colloidal material is iodin, or a combination of iodin or indeed whether the colloid component contains any iodin.) The recent statements of the agent seem to concede that what they call "electro-colloidal iodin" contains only about 50 per cent. of real iodin, in other words that it is not "colloidal iodin" at all but a mixture or combination of iodin with some other unnamed substance. This, of course, is something very different.

Certain results reported from the American Medical Association's Chemical Laboratory suggest that the so-called "colloidal iodin" of Iodeol may be a combination of iodin with a volatile oil. The investigations of the referee indicate that the iodin exists in a rather resistant form or combination behaving altogether differently from ordinary free iodin, and rather resembling the behavior of iodin substitution products, such as iodized fats or phenols. Briefly, then, the recent admissions of the agents indicate that Iodeol does not contain "colloidal iodin" in a chemical sense, and there are indications that it does contain its iodin in a rather firm (chemical) combination.

III. Chemical Properties of Iodeol.—From a study of different specimens of Iodeol, the referee concludes that fresh specimens contain no free iodin and that old ones contain small amounts as a result of decomposition. Iodeol has the solubility characteristics of fats and fat-like compounds. The examination, as a whole, shows that Iodeol contains a peculiar and rather resistant form or combination of iodin. There is nothing in the chemical data that suggests that it could act differently from ordinary iodin compounds, such as iodized fats. It would not act as ordinary iodin.

IV. Pharmacologic Data.—The pharmacologic statements which were submitted were loose and apparently meaningless or misleading. In reply to questions submitted by the referee, the manufacturer finally had some work done and submitted a report by Jean Laumonnier. The referee was unable to confirm some of this work, and as a whole it does not appear materially to elucidate the action of Iodeol. From a consideration of the submitted evidence and as a result of his own work, the referee concludes that Iodeol does not behave like elementary iodin; it does not coagulate proteins and therefore is not irritant. It is presumably absorbed, but quite probably after chemical change; it is changed into iodid and, like organic iodids, is excreted somewhat more slowly than when inorganic iodids are administered, but the difference does not appear important.

V. Antiseptic and Bactericidal Action.—Elementary iodin is considered a fairly powerful agent in these respects. The activity is presumably due to changes in the proteins, etc., of the bacteria, analogous to the effects which produce pain, irritation and necrosis of the tissue cells. Since the latter effect is not produced by Iodeol, it seems highly improbable, if not impossible, that it should act on bacteria like elementary iodin. It is entirely unjustifiable to credit the known antibacterial qualities of ordinary iodin to "colloid" iodin. This misrepresentation is especially prominent in the circular "Notable New Therapeutic Agents," as will be seen, for instance, from the following citations:

> "Iodine has long been universally recognized as an antiseptic of extraordinary potency. Not only is it *rapid* and certain in its germ-destroying action, but it *also* possesses an attribute denied many other antiseptic agents, *namely*, the *power* to penetrate and *impregnate* the tissues. Other antiseptics, as is well known, act on the surface epithelium only."
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> "According to Kinnaman (JOURNAL A. M. A., Aug. 26, 1905), iodine is far superior to bichloride of *mercury*, a two per cent. solution killing streptococcus pyogenes in two minutes. Iodine does *not* coagulate *albumin*, and is very penetrating."

The citations imply that this "colloidal iodin" of Iodeol and Iodagol acts as an antiseptic like ordinary iodin, except that it is claimed to be more efficient by "diffusing" more readily. This is entirely unjustified and misleading. If Iodeol and Iodagol are really antiseptic, they must act by some other mechanism than that through which elementary iodin acts, and such antiseptic action would have to be demonstrated by direct observation and not assumed from the known action of free iodin.

Antiseptic and bactericidal effects are easily estimated by laboratory methods. Yet no evidence on this point appeared to have been available until the Council called for this. Laumonnier then carried out some experiments which were in turn submitted to bacteriologic control. The bacteriologist failed to obtain any results with some of the tests, and considered the other data of little value.

The claim that Iodeol and Iodagol have the antiseptic and bactericidal action of free iodin lacks proof and must be considered unwarranted and misleading in the extreme.

VI. Clinical Trials.—The manufacturers and agents of Iodeol presented many letters from physicians; but few, if any, of these gave evidence of careful, critical, controlled observations. They could not, therefore, be considered as acceptable evidence. The more important claims, letters and published papers, however, were submitted to clinical specialists collaborating with the Council, with the request that they examine these and conduct some clinical trials, if they considered it advisable. The results obtained in these preliminary trials did not appear sufficient to warrant further experimentation.

From a consideration of the evidence presented, the referee concludes that the claims made for Iodeol and Iodagol are unwarranted, exaggerated and misleading. He recommends that Iodeol and Iodagol be declared ineligible for New and Nonofficial Remedies for conflict with Rules 1 and 2 (misleading statements as to composition and identification) and with Rule 6 (unwarranted and misleading therapeutic claims). He further recommends that the Council authorize publication of the preceding summary of the consideration of Iodeol and Iodagol in THE JOURNAL and inclusion of the full report in the annual Council reports after submission to the manufacturer.

Garbage Saving at Army Cantonments.—Another practical demonstration of what may be done in the use of garbage is made by the War Department in the Army training camps. The garbage of thirteen of the cantonments will be sold to a contractor for feeding swine, yielding the government an annual price of $446,394. It is estimated that garbage waste from ten to fifteen soldiers will feed one hog, putting onto the animal 1 pound of weight per day. At this rate garbage from thirteen cantonments will produce 18,900,000 pounds of pork yearly. In cases where garbage can not be used for feeding, it will be treated for grease extraction and the tankage ground for stock food or fertilizer. The custom of burning garbage will be abolished altogether. The War Department will receive $240,000 annually for the manure from the horses and mules at Army cantonments.—*Weekly Bulletin.*

Correspondence

"DISORDERED ACTION OF THE HEART" IN BRITISH SOLDIERS

To the Editor:—The report on soldiers returned as cases of "disordered action of the heart" of the Medical Research Committee in England has recently been supplemented by reports of the detailed clinical studies made by members of the staff, contained in *Heart*, **6**, No. 4. The most striking features of these excellent and very detailed studies are, first, the negative conclusions as to the etiology and pathology of this syndrome, and, second, the positive conclusion that graduated exercises cure a large proportion of the patients.

These patients show certain symptoms which to my mind are most significant—breathlessness, and blood pressure and pulse reactions to exercise. The authors state that "the response of the respiratory rate to exercise is a very exaggerated one." Again, "None of our patients are capable of such effort (i. e., amounts of work healthy young adults are capable of) : equal distress and similar pulse rates and systolic pressure are produced by smaller amounts of work or work done more slowly. It is clear that if we chose a given amount of work as a stimulus and apply the stimulus to healthy controls and to our patients, the latter react to the stimulus in an exaggerated fashion. The pulse rate rises much higher than in controls, and the high rate is longer sustained, the blood pressure rises higher, and the raised pressure is longer sustained than in controls: the summit of the blood pressure is not delayed,[1] however: breathlessness, fatigue and palpitation are also much more in evidence."

It seems to me very clear that the patients who presented the foregoing symptoms were suffering from a decreased cardiac reserve power. The fact that so many of them were cured by graduated exercises affords additional and convincing proof. The neurotic symytoms that were often present are not necessarily a sequence of the decreased cardiac reserve power, but probably are simply a concomitant. Very possibly they are caused by the same factors that produced the decrease in cardiac reserve power.

We frequently see these patients with decreased cardiac reserve power in civil life, and graduated exercises cure them. One half of the patients described in the report dated the onset of symptoms a number of years back. Infections of various kinds contracted during service immediately preceded the onset of symptoms in another large group. The cardiac reserve power is always lowered after any infection of moderate severity. Any one who has indulged in exercise too soon after a sojourn in bed with fever can appreciate the truth of this statement. The report takes cognizance of this etiologic factor when it states that "convalescent treatment should be more prolonged than is often the case; a graduated system of retraining seems most desirable."

A group of patients is described who suffered from precordial pain and in many instances hyperesthesia of the chest wall, both accentuated by exercise. The circulatory reactions of this group to exercise are not given except in one instance, probably because it was inadvisable to carry out exercise experiments on account of their effect on the pain. These patients are quite rare in civil life, and their subsequent histories would be of much value.

Objections may be made to my use of the term "cardiac reserve power." The heart's total capacity is made up of two component parts; one, the smaller, comprises the power expended in furnishing the requirements of the metabolism with the body at rest; the other, by far the larger, is utilized when physical work is performed. It is this potentially large component that is called into action by graduated exercises. Any expression which describes a definite function of a bodily organ has a perfectly legitimate use. In this instance the term "cardiac reserve power" denotes a most important function of the heart, the variations of which are matters of personal experience to every man who has gone through a course of physical training. Our inability to measure the heart's reserve power directly is not a reason for ignoring its existence.

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[1] The summit was not delayed because the authors in each experiment stopped increasing the work just as they were about to reach a "delayed rise." The controls were given from ⅓ to 4 times more work than the patients (comparing the maximum amounts given). Had the authors been a little more persistent they would have found the "summit of maximal pressure is delayed" exactly as they found it was in normal patients and with decidedly less work.

When the reserve power is impaired, not from organic disease of the heart, but from any one of numerous causes, there is presented a characteristic clinical picture which to my mind the authors of this report have described quite accurately. The neurotic symptoms from which these patients suffer do not alter the significance of the respiratory and circulatory reactions to work or the significance of the curative effect of graduated exercises.

Theodore B. Barringer, Jr., M.D., New York.

THE CARREL-DAKIN TREATMENT

To the Editor:—I am enclosing a letter which I wrote recently to Dr. William H. Welch in regard to the Carrel method of wound treatment which is at present so actively under discussion. I believe that it presents a point of view that might very well be presented to the profession at this time through the columns of The Journal.

Arthur Dean Bevan, M.D., Chicago.

My Dear Dr. Welch:

I want to write you about a problem which I think is of considerable importance to the Medical Corps at this time and in which I believe you are interested. The problem is that of the Carrel method of wound treatment. I of course have followed in the past two years the surgical literature on this subject with a great deal of interest. At the meeting of the American Surgical Association this spring, Dr. Charles Gibson of New York read a paper on this subject, and at the American Medical Association meeting in June, Dr. William Sherman of Pittsburgh discussed the subject before the surgical section. They both presented the subject in a most enthusiastic way and made very startling claims for the new method. These were so out of keeping with the reports that I have been able to obtain from well qualified surgeons of large experience who had the opportunity of employing it in their military hospital work, and were in such opposition to the generally accepted views of surgical pathology and wound repair, that I have taken the pains to go into the subject pretty fully with an attempt to analyze the facts and arrive at a judicial opinion as to its value.

When I was in Washington during the first two weeks in October, I found that classes of men were being sent to the Carrel Hospital in connection with the Rockefeller Institute in New York for the purpose of taking short courses in the Carrel-Dakin method. On leaving Washington I went to New York and spent one morning at the Carrel Institute and had the opportunity of obtaining a syllabus of the work that is being done in these courses, of seeing their hospital and laboratories, and of witnessing one operation done by Josh Hartwell, not under the supervision of Carrel himself, but of a French army officer who is at the hospital and who has been with Carrel for some time.

I found in discussing personally with several surgeons and from letters and reports which I have had an opportunity of reading from Dr. James Neff, who was in charge of a base hospital of a thousand beds or more for a year on the western front, from a report by Dr. George Crile, from a talk with Dr. James Burry, who has had the treatment tried for a number of months in his accident work in the Illinois Steel Company, from the statements made by Fred Murphy and reports from Joe Blake, and personal communication from Sir Berkeley Moynihan, that they and many surgeons were skeptical as to its practical value. I did not venture, however, to form an opinion of my own until I had the opportunity during the last week of reading Carrel's book and analyzing the problem from this report of his own work. I should like to make clear that the views that I express in this letter are not obtained from any hearsay evidence but from an analysis of Carrel's own views expressed in this book. One of the important parts of modern surgery and one of the things that has made modern surgery possible is that division of the science that is known as surgical pathology. By this I mean a division of pathology that has been specially studied and developed by scientific clinical surgeons. It is only necessary for me to state that the development of modern surgical pathology rests on the work of Lister, of Paget, of Billroth, of such men in this country as Fenger and Senn, and is well presented today by the work done by Lexer and presented in a book which is known as Lexer's "General Surgery." From the time of Lister until now, scientific clinical surgeons have studied the special pathologic problems that were involved in the science and practice of surgery. The problems of wound repair, of infection and the processes by which an organism frees itself from infection, separating the living from the devitalized tissues, the extrusion, digestion and encapsulation of foreign bodies, etc., have been studied with the greatest possible care, and many of these problems worked out as thoroughly both experimentally and clinically as in any field of medical science. Analyzing the Carrel work from the standpoint of what is known of modern scientific surgical pathology, I am forced to the conclusion that his work does not at all meet the requirements essential to a piece of scientific research. I take it for granted that the chemical problems involved have been scientifically handled; but the problems of surgical pathology have been handled in a superficial, incomplete way without the necessary controls, and frankly the conclusion is forced on me that Carrel's part of the work is not scientifically proved and cannot be accepted.

It is evident as one analyzes Carrel's statements that it is a piece of work done by a laboratory man who does not understand the clinical problems involved, who either does not know or ignores many essential facts, and whose conclusions as to the miracle working effects of the Dakin solution in his scheme of treatment have about as little basis in fact as the exaggerated claims that have been made for "ambrine" in the treatment of burns. The trouble is that this problem has not been attacked in the right way. A problem of this kind should be attacked by the joint labor of a number of teams, each one composed of a thoroughly scientific clinical surgeon who is well trained in the science of surgical pathology, in conjunction possibly with such a laboratory worker as Carrel, and with the assistance of competent chemists and bacteriologists. It should be attacked in the most scientific and broadest possible way and with the necessary controls, controls that would enable the investigators to determine, first, the results from the employment of the accepted surgical methods of surgical technic as applied, for instance, to a shell wound of the thigh with compound fracture of the femur, including the earliest possible removal of foreign bodies and of devitalized tissue, the complete excision of the wounds with immediate closure in some cases and with free drainage, moist dressing with sterile water in others, the immobilization of the limb and the best possible general care of the patient, and the results of such wound treatment which could be designated as the control compared with similar cases treated with the employment of various antiseptic solutions, including the Dakin fluid. These experiments to be of value would have to be on a considerable scale. I am personally so thoroughly convinced that wound healing and the freeing of tissues and an organism from infection depends so largely on the life processes in the living cells at the point of injury and infection and the reaction of the sum total of living cells that make up the entire individual, and that the important thing that a surgeon can do is to eliminate noxious influences and place the particular part injured and the entire individual in a condition where this wound repair and elimination of infection can go on uninterfered with as little as possible, that I can see but a limited value in the local employment of antiseptics of any kind on the surface of the infected wound. That any antiseptic has any healing property, that any antiseptic is miracle working in the handling of wounds, is inconceivable.

Looking at the problem in a broad way, if we could express in figures the value of the means at our disposal of treatment of the shell and rifle wounds of this war, certainly much more than 90 per cent. of the sum total of the value of wound treatment would consist of the proper employment of the well known and generally accepted rules of surgical technic. Granted that the remaining 5 or 10 per cent. depended on the proper employment of antiseptic solutions, one may be very sure that the choice of one of a half dozen thoroughly tried out antiseptics, such as boric acid, aluminum acetate, Dakin solution, dichloramin-T, hydrogen peroxid, phenol and iodin, would not make any enormous difference in the sum total of the end-results.

If the above statements are true, it would be a serious mistake for the government medical services to adopt the Carrel treatment as a great and wonder-working improvement in our surgical technic, and to force a complicated, time-consuming, expensive plan of treatment on our medical service, possibly to find within a short time that it is of little or no value. As I have studied Carrel's book and attempted to form a judicial opinion of this problem, I am forced to the conclusion that, like Koch's lymph, Bier's hyperemia and the vaccine therapy for acute infections, the Carrel treatment will have a short period of popularity among that small corps of enthusiasts of the type that is easily carried away by new, startling methods, and like the Bier's hyperemia and the vaccine therapy for acute infections, will hortly disappear, consumed in the fire of actual experience and scientific research.

I am venturing to write this to you because I know how much you are interested in the sound, practical, successful organization of the Medical Department for this war, and because I know how deeply interested you are in the success of the Rockefeller Institute. I think this matter should be handled in a practical way in our army organization. The Carrel treatment cannot and should not be accepted at this time as a demonstrated truth. It should be accepted as a method that is experimental and under trial. It should not be adopted by the United States medical service to the exclusion of other methods. If possible, a number of base hospitals officered by strong corps of men should try out thoroughly, in a scientific way, the various methods of wound treatment that seem to offer possibilities of adding to our present knowledge in this particular field of surgical pathology. The very exaggerated claims which have gotten into our medical journals and even into the lay press should be disparaged by those who are in a position to control the situation.

Very truly yours,

Arthur Dean Bevan.

VARIATIONS IN RESISTANCE OF BLOOD CELLS TO HEMOLYSIS

To the Editor:—In conducting experiments with preserved complement, I have found that the complement apparently varies in strength from week to week, fluctuating from strong to weak and strong again, sometimes stronger the third week than the first.

I have found this to be due to a factor, hitherto unnoted, namely, the marked variation in resistance of different batches of blood cells to hemolysis. I want, therefore, to issue this note of warning to all serologists utilizing my complement preservative (The Journal, Sept. 22, 1917, p. 973): *It is necessary to retitrate the complement with each new supply of blood cells.* For example, one batch of blood cells required 0.175 of complement to complete the hemolytic system. Another batch of cells, used two days later, required only 0.1. Still another batch of cells, used two days following the latter, required 0.125 of this same complement for the Wassermann tests.

B. W. Rhamy, M.D., Fort Wayne, Ind.

BELGIAN AND FRENCH PHYSICIANS' FUND

To the Editor:—I beg leave to report the following contributions which have been made for the relief of the Belgian and French civilian physicians to enable them to reestablish themselves in their looted or even destroyed offices now made accessible by the retreat of the German army. This is in addition to the sum of $920 reported in The Journal, October 13. The total, including interest on the deposits, is $1,127.28. One half of this, $563.64, I have forwarded to Dr. A. Depage at La Panne, Belgium, through the Belgian Relief Committee, 1524 Walnut Street, Philadelphia. The other half I have forwarded to M. Charles Halais, 15 boulevard de Latour-Maubourg, Paris, for the French civilian doctors, through Mrs. Sara Y. Stevenson of the French relief here, 1122 Walnut Street.

I have also received instruments from the doctors named and also 5,000 disinfected fiber spoons from the Sanispoon Sales Co., Philadelphia. These disinfected and cheap spoons will be valuable to the civilian doctors in the cases of various contagious diseases, and they are so cheap that they can be used and thrown away.

I have to thank Charles Lentz & Sons, Philadelphia, for their very generous help in repairing and packing all the instruments. The value of the box sent to Belgium they place at $500. The box for the French doctors is not yet ready for packing.

Since this list has been made up and the checks sent several more contributions in money and instruments have been received. These will be acknowleged later. I hope for much more in money and in instruments.

Our colleagues when they return to their desolated and looted offices will bless their American colleagues for this timely help. Suppose the tables were turned and *we* were the sufferers. How grateful we should be!

W. W. Keen, M.D., Philadelphia.

SUBSCRIPTIONS IN CASH

Dr. W. J. Stapleton, Detroit	$ 5.00
Dr. Myrtle A. Hoag, Buffalo	10.00
Dr. Alfred Gordon, Philadelphia	5.00
Dr. E. H. Noble, Clemons, Iowa	5.00
Estate of Dr. F. A. Stillings, Concord, N. H., per Mrs. Stillings and her daughter, Mrs. E. C. Hirst	100.00
Dr. Clara A. March, Buffalo	15.00
Dr. S. M. Strohecker, Portland, Ore.	5.00
Dr. J. W. Preston, Roanoke, Va.	10.00
Dr. James M. Patton, Omaha	50.00

DONATION OF INSTRUMENTS

Dr. C. B. Crume, Bloomfield, Ky.
Sanispoon Sales Company, Philadelphia.
Dr. A. T. Cooper, Fort Bliss, Texas.
Dr. Myrtle A. Hoag, Buffalo.
Dr. E. H. Noble, Clemons, Iowa.
Dr. S. M. Strohecker, Portland, Ore.
Drs. W. E. Leonard, George M. Haywood, W. H. May and J. S. Reynolds, Minneapolis, Minn.
Dr. M. T. Clark, Walters, Okla.
Dr. Frank H. Jackson, Houlton, Maine.
Dr. Eugena Caravia, New York.
Dr. J. T. Foley, Lewistown, Mont.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. *Every letter must contain the writer's name and address, but these will be omitted, on request.*

LITERATURE ON WAR NEUROSES

To the Editor:—I should like to have the titles and publishers of books on mental and nervous diseases pertaining to war conditions, *and in particular the literature on the subject of predisposition to these diseases in persons entering the military service.*

C. W. Mack, M.D.,
Lieutenant, M. R. C., U. S. Army, Fort McDowell, Calif.

Answer.—

Buzzard, E. F.: Effect of War on Nervous System, *Lancet*, London, Dec. 30, 1916.
Saaler, B.: Nervous and Mental Diseases in Relation to Military Service, *Berl. klin. Wchnschr.*, Dec. 25, 1916.
Farrar, C. B.: War Neuroses with Observations on Canadian Expeditionary Force, *Am. Jour. Insan.*, April, 1917.
Mann, L.: Treatment of War Neuroses, *Berl. klin. Wchnschr.*, Dec. 11, 1916.
Mann, G.: War Neuroses, *Wien. klin. Wchnschr.*, Dec. 28, 1916.
Regis: Psychic and Neuropsychic *Affections in War, Boston Med. and Surg. Jour.*, Nov. 30, 1916.
Roussy and Lhermitte: War Psychoneuroses, *Ann. de méd.*, September-October, 1916; November-December, 1916.
[illegible] War Neuroses, *Practitioner*, London, May, 1916.
[illegible] y of War, *Lancet*, London, Aug. 12, 1916.
[illegible] and Central Nervous System, *Lancet*, London, Feb. 12, Feb. 20, March 11, 1916.
Lépine: Effects of Explosives Without Direct Contact on Nervous System, *Bull de l'Acad. de méd.*, July 4, 1916.
Lhermitte, J., and Roussy, G.: Psychonévroses de guerre, Masson et Cie, Paris, 4 francs.
Babinski, J., and Froment, J.: Hystérie—pithiatisme et troubles nerveux d'ordre reflexé en neruologie de guerre, Masson et Cie, Paris, 4 francs.
Smith, G. E., and Pear, T. H.: Shell Shock and Its Lessons, New York, Longmans, Green & Co., $1.
Graham, W.: War and Incidence of Insanity, *Pub. Health Jour.*, January, 1917.

TYPHOID IN THE WAR OF 1898

To the Editor:—1. How many cases of typhoid were there in the Army during the Spanish-American War? How many deaths from this disease?

2. To what degree is typhoid vaccine a preventive?

J. E. Brinkman, M.D., Waterloo, Iowa.

Answer.—1. In our war with Spain there were 20,738 cases of typhoid fever among 108,000 men, all occurring within three and one-half months. Typhoid fever caused nine tenths of all deaths among troops in the United States in 1898.

2. Antityphoid vaccination has demonstrated itself to be an almost certain preventive of typhoid fever. For comparison with the foregoing figures, on October 19, there were practically 1,000,000 soldiers in camp in the United States, all of whom had been vaccinated or were undergoing vaccination against typhoid fever, with a total incidence of twelve cases of this disease.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Delaware: Wilmington, Dec. 11-13. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

Florida: Jacksonville, Dec. 4-5. Sec., Dr. W. M. Rowlett, Citizens Bank Bldg., Tampa.

Kentucky: Louisville, Dec. 4-6. Sec., Dr. A. T. McCormack, Bowling Green.

Louisiana: New Orleans, Dec. 6-8. Sec., Dr. E. W. Mahler, 730 Audubon Bldg., New Orleans.

Maryland: Baltimore, Dec. 11. Sec., Dr. J. McP. Scott, 137 W. Washington St., Hagerstown.

Minnesota: St. Paul, Jan. 2-4. Sec., Dr. Thomas McDavitt, 741 Lowry Bldg., St. Paul.

Missouri: St. Louis, Dec. 17-19. Sec., Dr. George H. Jones, 206 Washington St., Jefferson City.

National Board of Medical Examiners: New York City, Jan. 9-17. Assistant Sec., Mrs. Isabelle F. Tiers, 310 Real Estate Bldg., Broad and Chestnut Sts., Philadelphia.

New Hampshire: Concord, Dec. 10-12. Sec., Dr. W. S. Crosby, Beacon Bldg., Manchester.

North Dakota: Grand Forks, Jan. 1. Sec., Dr. G. M. Williamson, Grand Forks.

Ohio: Columbus, Dec. 4-6. Sec. Pro-tem., Dr. Herbert M. Platter, 185 E. State St., Columbus.

Oregon: Portland, Jan. 1. Sec., Dr. Herbert S. Nichols, Portland.

Rhode Island: Providence, Jan. 3. Sec., Dr. B. U. Richards, State House, Providence.

Texas: Dallas, Nov. 20-22. Sec., Dr. M. F. Bettencourt, Mart.

Virginia: Richmond, Dec. 11-14. Sec., Dr. J. W. Preston, McBain Bldg., Roanoke.

Washington: Spokane, Jan. 1. Sec., Dr. C. N. Suttner, Baker Bldg., Walla Walla.

West Virginia: Clarksburg, Nov. 21-23. Chairman, Dr. S. L. Jepson, Capitol Bldg., Charleston.

California April Examination

Dr. C. B. Pinkham, secretary of the Board of Medical Examiners of the State of California, reports the written examination held at Los Angeles, April 9-13, 1917. The examination covered 9 subjects and included 90 questions. An average of 75 per cent. was required to pass. Of the 56 candidates examined, 40, including 27 osteopaths, passed, and 16, including 12 osteopaths, failed. Sixty-two candidates were licensed through reciprocity. Twelve candidates were granted drugless practitioner certificates. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
College of Physicians and Surgeons of San Francisco	(1915)	85.7
Hahnemann Medical College of the Pacific	(1916)	75.5
Leland Stanford Junior Univ. (1914) 88.2; (1915) 89;	(1916)	88.7
Chicago College of Medicine and Surgery	(1916)	81.1
Rush Medical College	(1916)	87.3, 88.2
Columbia University	(1914)	76.8
Jefferson Medical College of Philadelphia	(1916)	84.4
Vanderbilt University	(1913)	76.2
Laval University	(1911)	81
Nagasaki Special Medical School	(1905)	79.5

FAILED

College	Year Grad.	Per Cent.
California Eclectic Medical College	(1915)	72.2
Loyola University	(1916)	73.5
St. Louis College of Physicians and Surgeons	(1907)	51.2
Kiota Imperial University	(1910)	23.2

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
University of Alabama	(1910)	Arizona
Denver and Gross College of Medicine	(1909)	Washington
University of Colorado	(1912)	Colorado
American Medical Missionary College	(1900)	Illinois
Bennett College of Eclectic Medicine and Surgery	(1903)	Wisconsin
Bennett Medical College	(1914)	Illinois
Chicago College of Medicine and Surgery	(1912)	Arizona
(1914)	(1915)	Illinois
Chicago Medical College	(1873)	Colorado
College of Physicians and Surgeons, Chicago	(1902)	Iowa
	(1905)	Illinois
Hahnemann Medical College and Hospital	(1903)	Nebraska
Northwestern University (1894) Idaho;	(1897)	Wisconsin
	(1907)	Penna.
Rush Medical College (1878) Illinois;	(1902)	Iowa
Keokuk Med. College, Coll. of Phys. and Surgeons	(1905)	Iowa
State University of Iowa College of Medicine	(1873)	Illinois
(1902) Minnesota;	(1903)	Iowa
University of Kansas	(1910)	Kansas
Kentucky School of Medicine (1892) Ohio;	(1893)	Kentucky
Louisville Medical College	(1887)	Colorado
Medical School of Maine	(1910)	Maine
Baltimore Medical College (1898) New York;	(1900)	Kansas
Detroit College of Medicine	(1902)	Michigan
University of Michigan Homeo. Medical School	(1899)	Nebraska
University of Michigan Medical School	(1882)	Michigan
Minneapolis College of Physicians and Surgeons	(1907)	N. Dakota
Barnes Medical College	(1909)	Illinois
Marion-Sims College of Medicine	(1899)	S. Dakota
Medico-Chirurgical College of Kansas City	(1900)	Missouri
Missouri Medical College	(1887)	New York
St. Louis University	(1911)	Illinois
University Medical College of Kansas City	(1902)	Kansas
John A. Creighton Medical College	(1909)	Nebraska
Lincoln Medical College	(1901)	Nebraska
University of Nebraska	(1910)	Nebraska
Columbia University	(1900)	New York
Cornell University	(1899)	New York
New York Homeo. Medical College and Hospital	(1907)	New York
Cleveland College of Physicians and Surgeons	(1899)	New York
Eclectic Medical Institute	(1888)	Iowa
Homeopathic Hospital College	(1880)	Ohio
Miami Medical College	(1890)	Illinois
Toledo Medical College	(1897)	N. Dakota
Western Reserve University	(1907)	Ohio
University of Oregon	(1906)	Washington
University of Pennsylvania	(1907)	Penna.
University of Pittsburgh	(1908)	Illinois
Memphis Hospital Medical College	(1894)	Tennessee
University of Tennessee	(1914)	Tennessee
Milwaukee Medical College	(1897)	N. Dakota
Queen's University	(1885)	Washington
McGill University	(1903)	Mass.
University of Berlin	(1883)	New York
University of Palermo	(1900)*	Penna.
University of Rome	(1900)	New York

* Official information from the University of Palermo says this candidate is not a graduate of that university.

Arkansas May Examination

Dr. T. J. Stout, secretary of the State Medical Board of the Arkansas Medical Society, reports the written examination held at Little Rock, May 8-9, 1917. The examination covered 12 subjects, and included 120 questions. An average of 75 per cent. was required to pass. Of the 45 candidates examined, 40 passed and 5 failed. Six candidates were granted reregistration certificates. Twenty-eight candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University of Arkansas	(1917)	75, 80.5, 80.7, 81.3, 82.3, 82.7, 83.2, 83.5, 83.7, 84.6, 84.8, 87.1, 87.2, 88.2.
George Washington University	(1908)	84.6
Louisville Medical College (1877) 81.4;	(1905)	93
Meharry Medical College (1916) 75,	(1917)	79.4, 82.6, 87.7.
University of Tennessee	(1917)	78.4, 81.2, 82.2, 85.1, 85.2, 85.5, 85.5 85.8, 86.3, 86.3, 86.6, 86.8, 87.2, 88, 88.2, 88.8, 88.9, 89.
Baylor University	(1910)	78.7

FAILED

College	Year Grad.	Per Cent.
Birmingham Medical College	(1915)	72.4
College of Phys. and Surgs., Little Rock (1908) 58.2;	(1910)	52.6
University of Arkansas	(1907)	61
Vanderbilt University	(1892)	15.7

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Arkansas Industrial University	(1896)	Texas
Chicago College of Medicine and Surgery	(1907)	Illinois
Hospital College of Medicine	(1900)	Kentucky
Louisville and Hospital Medical College	(1908)	Kentucky
Louisville Medical College (1903) Mississippi;	(1907)	Kentucky
University of Louisville	(1907)	Mississippi
Tulane University of Louisiana (1888)	(1891)	Mississippi
	(1915)	Louisiana
College of Physicians and Surgeons, Baltimore	(1891)	Tennessee
Memphis Hospital Medical College (1888) (1898) (1901) (1904) (1905, 2) (1909) Mississippi; (1908) (1910) Tennessee.		
Sewanee Medical College	(1899)	Mississippi
University of Nashville (1906)	(1908)	Mississippi
Universities of Nashville and Tennessee	(1910)	Mississippi
University of Tennessee (1909) Tennessee;	(1916)	Mississippi
Vanderbilt University (1915) Alabama;	(1916)	Mississippi

Connecticut Eclectic July Examination

Dr. James E. Hair, acting secretary of the Connecticut Eclectic Medical Examining Board, reports the written examination held at New Haven, July 10, 1917. The examination covered 10 subjects, and included 100 questions. An average of 75 per cent. was required to pass. Four candidates were examined, all of whom passed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Kansas City College of Medicine and Surgery	(1917)	81, 86, 88.
Eclectic Medical College	(1917)	86

Book Notices

Poliomyelitis in All Its Aspects. By John Ruhräh, M.D., Professor of Pediatrics in the University of Maryland Medical School and the College of Physicians and Surgeons, and Erwin E. Mayer, M.D., First Lieutenant in the Medical Reserve Corps, United States Army. Cloth. Price, $3.25. Pp. 297, with 120 illustrations. Philadelphia: Lea & Febiger, 1917.

The great epidemic of poliomyelitis of 1916 in New York and in the East generally has been productive of several books concerning this disease. This book contains an excellent historical review of the subject, illustrated with reproductions from some of the first monographs on the subject. The section on pathology follows the usual lines. Especial interest attaches to the discussion of the nature of the virus, a question now the subject of rather interesting argument. The authors consider literature up to July, 1917, and finally conclude that it is reasonably safe to state that the streptococci and diplococci found by various investigators are not the causal agents of the disease. The discussion of epidemiology and classification of the various types is excellent. The chapter on paralysis is illustrated with photographs of the different types of paralysis. A chapter is devoted, very properly, to the technic of lumbar puncture, a much needed lesson. Other chapters concern the diagnosis and prognosis. By far the larger portion of the book is devoted to treatment, which adds to the practical value of the work. The authors have very thoroughly covered most of the articles on treatment that appeared in periodical literature during the recent epidemic. The exceedingly valuable work of Lovett, leading to muscle training and exercises, is outlined in detail. The book concludes with a chapter of anatomic and physiologic reminders, and a complete list of all the epidemics from which the world has suffered. It is an excellent book, not only for those especially interested in poliomyelitis, but also for any physician who wishes to be thoroughly informed on this important disease.

Obstetrics for Nurses. By Charles B. Reed, M.D., Obstetrician to Wesley Memorial Hospital, Chicago. Cloth. Price, $2.50. Pp. 374, with 130 illustrations. St. Louis: C. V. Mosby Company, 1917.

The author has prepared a practical and complete manual of obstetrics for nurses. The subject is taken up in the usual order, a small amount of space being devoted to anatomy and physiology, followed by a discussion of normal and abnormal pregnancy, labor and puerperium; operations; complications; infection; a large section on the care of the child and infant feeding; an extensive list of diets and formulas; solutions; a therapeutic index, and a glossary. The book is well illustrated. It is interesting to find that the author recommends morphin and scopolamin for the first stage of labor, and gas for the second stage, with a change to chloroform and ether just before the completion of the second stage. The section on the care of the child is hardly up to the standard of the first part of the book. The author recommends a mixture of asafetida or whisky and hot water for attacks of colic. The therapeutic index might better have been omitted, especially since the pharmacology of several of the drugs hardly agrees with modern ideas, including the fact that at least three proprietary preparations are mentioned for which pharmacopeial preparations might better have been substituted. The increase in the cost of paper may be responsible for the fact that at least three different qualities of paper are used in the book. All in all, the book is to be recommended as a manual for the obstetric nurse.

Sanitation Practically Applied. By Harold Bacon Wood, M.D., Dr.P.H., Assistant Commissioner, West Virginia State Department of Health. Cloth. Price, $3 net. Pp. 473, with illustrations. New York: John Wiley & Sons, 1917.

This was written, the author states, as a practical guide for the field practice of sanitation. Omitting most of the details of analysis and examination from the laboratory side, which can be found in the larger treatises on hygiene and preventive medicine, the author covers a large field in such a manner that not only the physician and public health officer but also the layman will profit by reading the book. The opening chapter states the need for public health work, and maps the organization of a health department. In his discussion of the laboratory, it is interesting to note that Dr. Wood believes laboratory examinations for syphilis and gonococcal infections not made to determine quarantine are not the work for the public health laboratory. Statistics are reviewed in the second chapter. The third chapter reviews the latest methods of control of each of the communicable diseases. In considering Behring vaccination in diphtheria, a brief description of the methods would make the discussion clearer to the average reader. The author in successive chapters discusses child welfare, school hygiene, and the inspection and preservation of foods, giving a separate chapter to milk. Under water supplies are described the various modes of protecting and purifying water. Sewage disposal describes the care of sewage from the house to its final disposition, comparing the different methods of treatment. Industrial and occupational diseases are treated under hygiene of the home and factory. With our present knowledge of the rôle played by lower forms of animal life in transmitting disease, the chapter on the destruction of insects that transmit disease is especially timely. Methods also for destroying ground squirrels and our most deadly and expensive pest, the rat, are described. The last chapter is of particular interest to public health officers in that it outlines courses for interesting and teaching the people their part in conserving the health of the community.

An Index of Differential Diagnosis of Main Symptoms. By Various Writers. Edited by Herbert French, M.A., M.D., F.R.C.P., Physician, Pathologist and Lecturer, Guy's Hospital. Second Edition. Cloth. Price, $10 net. Pp. 912, with 343 illustrations. New York: William Wood & Co., 1917.

This book, which covers medicine in all its branches, is the combined work of twenty-three well-known English physicians and surgeons. The symptoms are arranged in alphabetical order, the symptom being named and followed by a discussion as to the possible diagnosis in the presence of the symptom discussed. Because of its size, it is impossible to review all of the various sections of the book critically. It is well printed on enameled paper of excellent quality. There are 306 good halftone illustrations and thirty-seven colored plates. The final 150 pages are devoted to an index in which main topics are distinguished from notes and mere mention of the subjects discussed. This index in itself is a thought producer; for example, a reference to the main heading is followed by an outline of the possible diagnosis attached to this symptom.

Congenital Word-Blindness. By James Hinshelwood, M.A., M.D., F.R.F.P.S., Lecturer on Ophthalmology in the Glasgow Western Medical School. Cloth. Price, 4 shillings net. Pp. 112. London: H. K. Lewis & Co., Ltd., 1917.

This is not only a valuable and convenient monograph for those interested in the subject, but so far as we know the only collective work in this restricted field. First, the author gives an excellent description, with illustrative cases, of acquired word-blindness. A brief history of our knowledge of this particular defect as a congenital condition and a statement of the symptomatology follow. Cases are then reported. Finally there is an account of the syndrome as a family or hereditary occurrence, and a consideration of prognosis and treatment. The book should be on the shelves of every neurologist and pediatrician, and the principal features of the syndrome in a compartment of his memory.

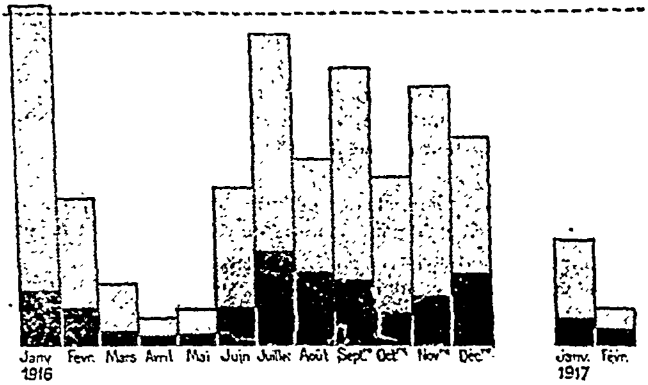
Bibliography of Titles on Poliomyelitis Contained in the Supplementary Card Catalogue of the Library of the Surgeon-General's Office. 1908-1917. Compiled by the Medical Department of the American Research Institute (May 15, 1917). Paper. Price, $5. Pp. 80. Washington: American Research Institute, 1917.

This bibliography supplements the references in Volume 13 of the Index Catalogue of the Library of the Surgeon-General's Office published in 1908. It contains approximately 1,500 titles of books and articles, and in the arrangement of the articles and in the citation of the references the general style of the Index Catalogue is followed. The American Research Institute will issue quarterly a supplement to this bibliography at $1 for every 500 titles.

Social Medicine, Medical Economics and Miscellany

Share of Vaccination Against Typhoid and Paratyphoid in the Disappearance of These Diseases in the Macedonian Campaign

P. Armand-Delille, Paisseau and Lemaire call attention to the success of the vaccinations in reducing typhoid and paratyphoid among the troops in the Saloniki region, the *armée d'Orient,* as they call it. They emphasize first the almost exclusive limitation of the cases of typhoid to the nonvaccinated, and, secondly, the almost complete disappearance of paratyphoid after the vaccine included both the paratyphoid A and B bacilli as well as the typhoid. Their figures include the entire Saloniki region and show the proportion per thousand men. The large number of cases in the summer months was due to the fatigues of the occupation of Macedonia and an extensive offensive. The mixed vaccine was not obtained until June, and was not generally used until toward the close of 1916. The effects are shown best by comparing the records for January, 1916 and 1917, although the troops at the later date were undergoing greater hardships than the year before. The total number of cases of typhoid, January, 1916, was 0.20 per thousand men, and of paratyphoid, 0.85. In January, 1917, the proportions were 0.09 typhoid and 0.22 paratyphoid, while in February the figures were respectively 0.05 and 0.06 per thousand men.



Typhoid and paratyphoid after combined vaccination.

Report of Rockefeller Foundation

The annual report of the Rockefeller Foundation for 1916 covers three of the chief activities of the foundation: the work of the International Health Board, the China Medical Board and the War Relief Commission. The International Health Board during the period named began work in Siam, Ceylon, Salvador and Brazil in cooperation with the governments of those countries for the relief and control of hookworm disease. This work also included activities in eight of the Southern States and fifteen foreign countries, and arrangements have been made to begin similar work in the Fiji Islands, Queensland and elsewhere. The report also includes the work of the Yellow Fever Commission headed by Surgeon-General Gorgas, which made a survey of the yellow fever situation in South and Central America. This commission found that Guayaquil, Ecuador, was the chief focus of the spread of yellow fever, with certain portions of the Carribbean Coast of South American and Eastern Brazil as points to be carefully watched. Intensive experiments were carried out in circumscribed areas in the Southern States, looking to the control of malaria. Three of these experiments were completed in 1916 with promising results, showing the feasibility of malarial control.

The China Medical Board, to promote the development of a comprehensive and efficient system of medicine in China, in addition to appropriations to existing medical schools and missionary organizations throughout China, voted to establish a medical school in Shanghai; a premedical school in Pekin for the preliminary education of students who are to take up the medical course, it being found that the scientific courses in existing Chinese schools are not sufficiently advanced to prepare students for the medical courses, and a Red Cross hospital in Shanghai. The services of Dr. Henry S. Houghton, formerly dean of the Harvard Medical School of China, were arranged for from July 1, 1916. He is to have charge of the Red Cross hospital, and will cooperate with Mr. Greene in directing the board's activities in China.

The foundation and the General Education Board have pledged a million dollars each toward the development of a center of medical education in connection with the University of Chicago; also in cooperation with the authorities of Johns Hopkins University an appropriation of $267,000 was made to establish in that university a school of hygiene and public health, which opened in October, 1917, with Dr. William H. Welsh as director. This school is intended to fit men for a public health career.

Medicolegal

Trained Nurses as Anesthetists, and the Practice of Medicine

(Frank et al. vs. South et al., State Board of Health (Ky.), 194 S. W. R. 375)

The Court of Appeals of Kentucky reverses a judgment that was rendered in favor of the plaintiff members of the state board of health, the court being of the opinion that defendant Hatfield, a trained and licensed nurse, in the performance of services as an anesthetist for defendant Frank, a duly licensed physician and surgeon who limited his practice to surgery, was not engaged in the practice of medicine, within the meaning of the statute laws on that subject.

The court says it has never heretofore been called on to define the term "the practice of medicine" as defined in the present statute, or to determine what things were or were not within the meaning of that act. While the practice of medicine is one of the most noble and learned professions, it is apparent that such a construction ought not to be given to the statute which regulates the profession that the effect of it would be to invade the province of the professions of pharmacy, dentistry or trained nursing, all of which are professions which relate to the alleviation of the human family of sickness and bodily afflictions, and to make duties belonging to those professions also "the practice of medicine" within the meaning of the statute. Neither should such a construction be given to it as to deprive the people from all service, which could be rendered to them in sickness and affliction, except gratuitous service, or else by licensed physicians, unless the legislature intended that such should be the result of the enactment of the statute.

As used in the present statute, the words "treatment of any human ailment or infirmity by any method" mean only to undertake the cure of any ailment or infirmity by some method, and it is clear that the legislative authority so understood it when it enacted the statute. To say that the term "practice of medicine" means the "treatment of any human ailment or infirmity by any method" is only an equivalent to saying that the practice of medicine shall be construed to be the attempt to effect the cure of such ailment by the application of some method, without regard to the method used. To do this it is necessary that the one undertaking the practice of medicine or to treat any human ailment or infirmity for the purpose of effecting a cure or to alleviate suffering arising from it by a method other than a treatment by medical agencies must necessarily do the things which are necessary to be done by one undertaking to practice medicine by medical agencies alone, and that is, he must make such a diagnosis of the symptoms of the ailment to determine what the ailment is. He must furthermore determine what the remedy should be and how it should be administered and when it should be administered, and then to administer the remedy, either in person or by directions to some one who is associated with the patient. It was contended that the language "the treatment of any human ailment or infirmity by any method" was enlarged by the language preceding it: "To treat the sick or injured or in any way discharge the duties usually performed by physicians, whether by medical, surgical or mechanical means"; but, construing all of the language of the subsection together, it is evident that "or in any way discharge the duties usually performed by physicians" must necessarily mean the duties usually performed by physicians in the practice of medicine at the time of the enactment of the statute and as understood at that time. The things usually performed by physicians which are not the practice of medicine are not included or intended to be included in the act.

It is the duty of the surgeon who would undertake a surgical operation to make a diagnosis of the symptoms of the patient to determine his ailment and the remedy necessary, and, if he determines that an anesthetic is necessary for the performance of the operation, to determine what anesthetic is necessary and the manner of its administration, and to give the necessary directions for so doing and to supervise and direct its giving, and in the selection of an assistant to administer the anesthetic he should exercise the same degree of knowledge, skill and care as he is required by law to exercise in the performance of any part of the operation.

Insufficient Evidence of Malpractice in Treatment of Injured Wrist

(Dishman vs. Northern Pacific Beneficial Association et al. (Wash.), 164 Pac. R. 943)

The Supreme Court of Washington reverses a judgment that the plaintiff recovered in this case, against one of the surgeons of the beneficial association, for alleged malpractice and negligence on the part of the surgeon in failing to operate on and suture the injured extensor tendons of the plaintiff's left hand and wrist. The court says that of the eight physicians and surgeons testifying, other than this defendant, three were of the opinion that the extensor tendons were severed, that this defendant should have operated on the injured parts and sutured the extensor tendons, and that in failing to do so he was guilty of such unprofessional and unskilful practice as amounted to negligence, notwithstanding the carpal bones of the wrist were seriously disturbed in their setting, some of them were cracked, and the outer flesh of the wrist and hand was not broken. The other five witnesses, of apparent equal skill and learning in their profession with the foregoing three, were of the opinion that the extensor tendons were not severed, and that this defendant not only did not fail to exercise a reasonable degree of skill and judgment in not operating on the injured parts, but that his treatment of the injury was in their opinion such as the judgment of a skilful and prudent physician and surgeon would, under all of the circumstances, have dictated. Not only that, but the opinion of these physicians and surgeons was in substance that the defendant would have been pursuing the correct course in not operating on the injured parts, even had he been of the opinion that the extensor tendons were severed, in view of the serious injury to the carpal bones of the wrist and the fact that there had been no breaking of the outer flesh and skin. Such were the conflicting views of the learned doctors testifying in this case touching this manifestly intricate and delicate question of surgical science. To allow a jury or court to award damages against a physician for failure to perform such a delicate and risky surgical operation, when learned men of the profession have conflicting views touching the advisability of performing such an operation as appeared by the evidence in this case, would be, indeed, to allow the awarding of damages to rest on mere speculation and conjecture. The court has not noticed the testimony of these learned doctors at such length as it has for the purpose of determining which entertained the correct and which the erroneous opinion touching the defendant's treatment of the plaintiff's hand and wrist; but their testimony has been noticed by the court with a view of demonstrating that neither the defendant nor any other physician could, in the light of the plaintiff's injury and in the light of medical and surgical science, as the evidence in this case showed, have determined with any degree of certainty whether the treatment he pursued or the surgical operation which it was claimed he should have performed would have produced the better results. Had he operated, as it was claimed he should have done, and the result been no better than the treatment he gave, or worse, as the testimony of a majority of these learned doctors seemed to indicate, there would have been just as good ground for the plaintiff to rest a claim of damages on against him as that on which the plaintiff's present claim of damages was rested. This court has recognized the law to be that a physician is not an insurer of a cure in cases of affliction under his care for treatment, and that he is not to be held liable as for negligence or malpractice for the mere failure to cure, or for bad results because of his choosing one of two or more methods of treatment, when such choosing is an exercise of honest judgment on his part, and the method so chosen is one recognized by the medical profession as a proper method in the particular case, though it might not meet the unanimous approval of the medical profession.

Invalid Provisions for Revocation of Certificate

(Jewell vs. McCann et al. (Ohio), 116 N. E. R. 42)

The Supreme Court of Ohio reverses judgments of the court of common pleas and of the court of appeals that sustained a demurrer to the plaintiff's petition to enjoin the state medical board and its secretary from holding any hearing on, or making any finding or order with reference to, an application in the office of the board for the revocation of the plaintiff's certificate which authorized him to practice medicine and surgery. The court says that by the demurrer the question was presented whether the statutes which authorized proceedings to revoke the certificate, being Sections 1275 and 1276 of the General Code, were violative of the due process of law provisions of the state and federal constitutions. At the time of the commencement of this action, Dec. 18, 1914, those sections provided:

> "Sec. 1275. The state medical board may refuse to grant a certificate to a person guilty of fraud in passing the examination, or at any time guilty of felony or gross immorality, or addicted to the liquor or drug habit to such a degree as to render him unfit to practice medicine or surgery. Upon notice and hearing, the board, by a vote of not less than five members, may revoke a certificate for like cause or causes.
>
> "Sec. 1276. An appeal may be taken from the action of the state medical board refusing to grant, revoking or suspending a certificate, for the causes named in the preceding section, to the governor and attorney general, whose decision affirming or overruling the action of the state board shall be final."

Thereafter these sections were amended and supplemented; but, by reason of the provisions of Section 26 of the General Code, the statute as amended and supplemented subsequent to the institution of this proceeding could in no wise affect this case. The only authority possessed by the state medical board in the matter under consideration, at the time it attempted to take the action sought to be enjoined in this proceeding, was conferred by the sections above quoted. No provision whatever was made or then existed whereby the attendance of witnesses could be required or their testimony procured, nor was any procedure provided whereby the rights of the holder of such a certificate to engage in the practice of medicine could be protected and safeguarded. Although the statutes authorized the revocation of such certificate "upon notice and hearing," the board was not vested with any of the powers essential to the conduct of the trial or hearing. No process was authorized and no method or means for such hearing prescribed or provided, nor was an opportunity to be heard furnished by the provisions of Section 1276 authorizing an appeal to an officer or officers in whom was vested no authority to subpena witnesses, enforce attendance, compel the giving of testimony, or the production of necessary books, records and documentary evidence. The statutes in question did not provide the plaintiff due process of law, and are therefore invalid. The demurrer to his petition should have been overruled.

Society Proceedings

COMING MEETINGS

American Association of Anatomists, Minneapolis, Dec. 27-29.
American Physiological Society, Minneapolis, Dec. 27-29.
Porto Rico Medical Association, San Juan, Dec. 22-23.
Society of American Bacteriologists, Washington, D. C., Dec. 27-29.
Southern Minnesota Medical Association, Mankato, Nov. 26-27.
Western Surgical Association, Omaha, Dec. 14-15.

DELAWARE STATE MEDICAL SOCIETY

One Hundred and Twenty-Eighth Annual Meeting, held at Middletown, Oct. 8-9, 1917

The President, Dr. James Beebe, in the Chair

A Plea for Medical Supervision of Schools for Delaware

Dr. James Beebe, Lewes: As a member of a local draft board I found that the percentage of physically deficient young adults was apalling. The most impressive fact in this connection was that most of these defects could have been corrected by proper treatment early in life. I have observed that, as a rule, the family physician rarely pays attention to the children of a family other than those suffering from an acute illness. The only logical way to reach these cases is by medical inspection of children in the schools. Such inspection also leads to the early discovery of contagious diseases and provides for proper sanitary measures.

Traumatic Rupture of Spleen; Pancreatic Cyst; Bullet Wound of Bowel

Dr. John Palmer, Wilmington: A boy, aged 19 years, fell from a cherry tree. He had almost no external evidence of injury but was unconscious. The next day he suddenly showed symptoms of shock as from internal bleeding. On operation the spleen was found ruptured and still bleeding. The region was packed for six days and the patient made an uneventful recovery. A pancreatic cyst in a man, aged 30, was drained of about 5 quarts of fluid and packed, and within five weeks recovery was complete. A boy, aged 15 years, had a pistol shot wound of the abdomen. By roentgenoscopy the bullet was located in the posterior part of the pelvis. At operation, a hole was found in one side of the lower part of the ileum. This was sutured, and recovery was complete. A later roentgenogram did not show a bullet. The presumption is that it had lodged in the intestine and later passed out by the bowel.

DISCUSSION

Dr. William J. Marshall, Milford: Dr. Palmer's cases have been unusual. Up to 1890, no operations for ruptured spleen had been performed, and the mortality rate at that time was 84.6 per cent. The operation of choice is supposed to be a partial or total splenectomy. But in operating we are not after mechanically successful operation but results.

Pneumonia

Dr. Joseph W. Bastian, Wilmington: Pneumonia is a self-limited disease for which we have no specific. The most promising treatment is with serum which, however, is still in the experimental stage. If any local application has any effect it is the ice bag. These patients should be fed more liberally than was formerly done. Serum should not be used unless we first determine the variety of pneumococcus that causes the disease. Digitalis and strychnin are useful.

DISCUSSION

Dr. H. W. Briggs, Wilmington: All pneumonia patients do better in fresh air, but the temperature of the air should be such as not to create discomfort.

Dr. I. J. MacCollum, Dover: I believe in the use of counterirritation over the chest both in bronchopneumonia and in lobar pneumonia. I do not favor the ice cap in pneumonia. The only time an ice cap is permissible in pneumonia would be in the first twenty-four hours, as it is in all inflammatory local conditions in which one is attempting to prevent more congestion, and it does help in the progress of the disease. After that time it leads to stasis and is a hindrance rather than a help.

Dr. Robert B. Hopkins, Milton: We still are undecided as far as specific treatment is concerned, yet my treatment has consisted of elimination. I do not object to giving half an ounce of compound jalap powder. By that we drain the system. I believe we relieve the congestion to a certain extent, and, while pneumonia is a specific disease, I believe that pneumonia is also a mechanical disease. If we can relieve the portal circulation, we place the men in a better position for recovery. I have used largely ammonium chlorid combined with syrup of ipecac. I did not lose a pneumonia patient last winter.

Dr. J. W. Bastian, Wilmington: It has been conceded that patients do better with abundance of fresh air, comparatively cold; that is, hearty, robust patients. Unless there are some contraindications we put the patients on the porch with hoods on and their hands well protected by mittens. After being on the porch for a few hours, the majority request to be left there. The ice cap is, as a rule, kept on only for the first twenty-four hours. I am unable to see wherein the large doses of purgatives would have any particular advantage. If a man has had personal experience with large doses of purgatives, he realizes their effect. I think high rectal irrigations are better.

Leukemia

Dr. John W. James, Dover: I would urge the importance of blood examinations in cases of anemia. If this were done we should much less often fail in diagnosis. The three agents most commonly used in the treatment of leukemia are the roentgen ray, benzene (benzol, C_6H_6) and radium. The roentgen ray has probably given the best results, but the results of radium treatment have likewise been wonderful. Nothing, however, has been found to be curative. Good results cannot be obtained unless the patient will keep under constant treatment.

DISCUSSION

Dr. Joseph P. Wales, Wilmington: Year before last I had a very interesting case of leukemia. The patient has been practically well for a year and a half. The spleen was down in the pelvis. She had an uncommon symptom, that is, a very large pleural effusion on the left side. I had to aspirate eight times. The treatment was by the use of roentgen ray. Her spleen is now normal. She weighs 200 pounds, and is the picture of health.

Recognition and Treatment of Some Common Injuries and Diseases of the Eye

Dr. W. O. La Motte, Wilmington: In all eye conditions, the eye should be examined carefully. The treatment first adopted largely determines the outcome. Foreign bodies under the lids should be looked for. In looking for a foreign body on the cornea, rays from daylight or artificial light should be concentrated on it by means of a 3 inch lens, and if a foreign body is found, it should not be removed with a toothpick, and a cotton applicator should not be rubbed over the cornea. The foreign body should be removed with a sterile spud. Lime is a common cause of burns, and all foreign particles should be removed, which is best done by forcible irrigation of the conjunctival sac with clean water. Subsequently olive oil or sterile petrolatum should be instilled, and if the cornea is much inflamed, atropin should be used to prevent iritis. In all suspicions of entrance of a foreign body, as a piece of steel, a roentgenogram should be made. By Sweet's method its exact location can be found. Syphilis is the most common cause of iritis. Tuberculosis is second. Traumatism may be the exciting cause. Rheumatism is a doubtful cause. It may be caused by disturbance in metabolism or by absorption of toxins from the gastro-intestinal tract. Many cases of so-called rheumatic iritis are gonorrheal. Iritis should not be treated for conjunctivitis, as is often done, for it may mean the loss of an eye. Glaucoma is a disease that should always be kept in mind, because of the importance, among other things, of not using atropin in such an eye. Strabismus should be treated early by proper glasses, muscle exercises, etc. Eighty per cent. of these patients can be cured without operation if proper treatment is instituted early enough and carried out. Functional headaches are due to eyestrain in 75 per cent. of the cases. In gonorrheal ophthalmia, the conjunctival sac should be irrigated from every half to one hour day and night. Once a day after the eye has been cleansed, the conjunctiva should be treated by being brushed over with a 2 per cent. solution of silver nitrate, and then the excess of the drug washed away with physiologic sodium chlorid solution. Then the lids should be greased with petrolatum.

Fraternity and Cooperation

Dr. Peter W. Tomlinson, Wilmington: Envy, jealousy and ungenerous rivalry too frequently scandalize our ranks. Our love and loyalty to our great and honorable profession require us to accord to every accredited confrère a square deal and a fair field, and even compel us to spread a magnanimous mantle of courtesy and charity over minor deficiencies and unpleasant peculiarities. We must regard our brother's art and accomplishments in the spirit of family pride. We must count his discovery or invention as a victory for the profession. His honor is ours. Our gains and losses are both mutual and individual. His personal achievement is a professional asset. A profession is a fraternity. Ours is the most confidential and sacred profession in the secular world, dealing as it does with the most sacred and secret interests and relations of individuals and families, and frequently determining the question of life and death. The very heart of fraternity is cooperation. How often we forget this and outstretch all other professions in ungenerous competition and relentless rivalries. Competition means selfish isolation. Cooperation means friendly associations.

INTERSTATE ASSOCIATION OF ANESTHETISTS

Meeting held at Toledo, Ohio, Oct. 9-11, 1917

(Concluded from page 1647)

Ether and Etherization in Relation to Infection and Immunity

Dr. William D. Haines, Cincinnati: For the past two and a half years we have used ether intraperitoneally in all operative cases in which peritonitis was present. In forty-three recent cases the mortality was 9.13 per cent. In the total of sixty-six cases there occurred seven deaths, or a mortality of 10.4 per cent. for the entire series, which included gastro-intestinal perforations, gunfire and stab wounds, abortions, leaking pus tubes, and tuberculous peritonitis. In a number of the more virulent cases, ether was introduced through the drainage tube several times during the first and second days after operation. Postoperative complications, including shock, prolonged anesthesia, vomiting, dilatation of the stomach or heart, septic thrombophlebitis and gaseous distention of the intestine were not more frequent, severe or prolonged than in similar cases in which operation was performed prior to the adoption of ether in the treatment of peritonitis. Encouraged by our results, we have gradually enlarged the field of application to other infected regions of the body. Personal experience gained by reopening the abdomen for ileus and other postoperative conditions has led me to conclude that the formation of adhesions is dependent on some inherent condition in the patient's constitution rather than on the type of infection or the use of ether intraperitoneally. I have observed no instances of immediate or remote toxicity, sloughing or increased drainage due to the use of ether. Changes in dressings have been less frequent, toxemia has been more rapidly controlled, and recovery has been hastened by the use of ether, in quantities regulated by the age and condition of the patients.

Perfected Open Etherization and Its Utility in Routine Surgical Procedures.

Dr. Isabella C. Herb, Chicago: Etherization has become popular and prevalent as a safety-first precaution against chloroform fatalities. Open etherization has superseded other methods of administration because of its simplicity, efficiency, safety and freedom from untoward complications. My experience has convinced me that the method has a wider scope of utility in routine surgical procedures than any other technic of narcosis. Dissatisfaction with the method is invariably due to faulty technic. Induction may be facilitated by means of nitrous oxid-oxygen, ethyl chlorid or ethyl bromid, but these adjuncts are not necessary for a pleasant induction if etherization is not pushed. This method is not fool-proof. When ether alone is administered properly, the induction of narcosis by the open method is comparatively comfortable; the blood is well oxygenated throughout narcosis, and the patient leaves the operating table with normal respiration and normal color. Barring operations requiring insufflation anesthesia, the open method is suitable for any patient or operative procedure in which ether is the anesthetic of choice. Experimental evidence shows that with the open method of etherization there is less injury to the lung epithelium than when closed or semiclosed methods are employed. The conservation of body heat during narcosis is of greater importance than the warming of the ether vapor.

Vapor Anesthesia, with Special Reference to Ether-Oxygen

Dr. John J. Buettner, Syracuse, N. Y.: While vapor or insufflation anesthesia has its broadest scope in nose, throat and mouth operations, it is serviceable for many other procedures, and is advantageous in certain types of hazardous risks. The tendency from the start has been to stabilize vaporization by heating, and to promote increased safety by the use of oxygen as a vehicle. Asphyxia may be produced by a lack of oxygen as well as by an excess of carbon dioxid. For simplicity and convenience I now use an oxygen autogenor to which is attached a three-bottle anesthetic device capable of providing a washed, moist ether, chloroform or combined vapor with oxygen, through nasal tubes or mouth hook.

Low Pressure Nasal Administration of Nitrous Oxid-Oxygen

Dr. M. Ecker, New York: For those who of necessity do many oral operations under a personally conducted anesthesia or analgesia, an apparatus that gives a perfectly controlled and visibly gaged flow of gases, and a nosepiece that delivers what the apparatus feeds without demanding the attention of the operator's hands are essential requisites for successful analgesia and anesthesia with nitrous oxid-oxygen under low pressures. By using low pressures, which supply sufficient amounts of the anesthetic to meet the respiratory demands of nose and mouth breathers, without loss by forcing, a decided element of economy is introduced in this somewhat expensive form of anesthesia. Just sufficient flow and pressure to meet the patient's respiratory capacity will obviate loss by respiratory wastage or air admixture, while forcing will promote such loss. The rebreathing bag attached directly to the nasal inhaler facilitates free respiration under normal pressure, secures the desirable carbon dioxid content, serves as a guide to the depth and frequency of respiration, and promotes the economical use of the anesthetic gases.

Local Anesthesia for Certain Operations

Dr. Leigh F. Watson, Chicago: When the field of operation cannot be absolutely blocked or obtunded, local anesthesia is contraindicated and should not be attempted unless all painful periods of the procedure are offset by general anesthesia. Such combined narcosis is invaluable under questionable circumstances. As the technic of infiltration and nerve blocking is perfected, local and conductive anesthesia are being utilized for many major operations previously contraindicated.

Nitrous Oxid-Oxygen Analgesia and Anesthesia in Obstetrics

Drs. C. E. Turner and W. I. Jones, Columbus, Ohio: Nitrous oxid is the ideal agent for the relief of labor pains. It is inhaled as readily as air, is practically odorless, almost instantaneous in its analgesic action, and is eliminated before the next uterine contraction occurs. By varying its dosage, one may so accurately control the administration of nitrous oxid as to offset the increased or decreased distress of each individual pain. Its flexibility and rapidity of elimination make nitrous oxid analgesia preferable to hypodermic amnesia (twilight sleep) and chloroform à la reine. Nitrous oxid-oxygen has practically no contraindications in labor.

Anesthesia in the Surgery of Epileptics and the Control of Status Epilepticus

Dr. G. Kirby Collier, Sonyea, N. Y.: In operating on these epileptics we have in the majority of instances used open etherization by the drop method and have found it efficient, pleasant and safe. We have not noted even minor seizures during the induction period of narcosis, except in a few cases, and in these the attack could scarcely be termed a petit mal. Our results are in rather striking contrast to those of other observers who initiate induction with nitrous oxid and then switch to etherization. Nor have we noted seizures during the operative period, irrespective of the location of the operative field. In the mentally weak or dull, we have sometimes found it tedious to secure cooperation, but the reaction to the anesthetic has always been the same. If difficulty arises it is most probably due to misunderstanding or dulness, and not to any physiopathologic distinction. For some time we have also been using chloroform in the control of the convulsions of status epilepticus, in association with other procedures and remedies. Chloroform is given to control the initial convulsions as immediately as possible. We have found this an efficacious routine and comparatively free from danger, although in one instance the use of chloroform probably played a part in the production of a delayed toxemic poisoning, or precipitated an acute exacerbation of an already existing acidosis. This is the only untoward experience we have had. The utility and value of chlorform in status epilepticus is in direct ratio to the opportunity of administering it as early as possible in the attack. Thus administered, in conjunction with high colonic flushing, and sedatives, it is frequently a life-saving measure.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Physiology, Baltimore

October, XLIV, No. 3

1 Integumentary Photosensitivity in Marine Fish, Epinephelus Striatus Bloch. H. Jordan.—p. 259.
2 Movements of Excised Ureter of Dog. G. B. Roth, Washington, D. C.—p. 275.
3 *Effect of Ether Anesthesia, Emotions and Stimulation of Splanchnics on Catalase Content of Blood. W. E. Burge, Chicago. —p. 290.
4 *Factors Influencing Interchange of Fluid Between Blood and Tissue Spaces. Blood Pressure. F. H. Scott, Minneapolis. —p. 298.
5 *Id. Muscular Activity. F. H. Scott, E. T. Herrmann and A. M. Snell, Minneapolis.—p. 313.
6 *Presence of Albumoses in Tissues and in Blood, with Special Reference to Their Occurrence in Gastro-Intestinal Mucosa. J. J. Abel, M. C. Pincoffs and C. A. Rouiller, Baltimore.—p. 320.
7 *Effect of Temperature on Rhythm of Excised Segments from Different Parts of Intestine. F. B. Taylor and W. C. Alvarez, San Francisco.—p. 344.
8 Mechanism for Vasodilatation from Epinephrin. F. A. Hartman and L. M. Fraser, Toronto, Canada.—p. 353.
9 *Physiology of Respiration. Changes Taking Place in Composition of Alveolar Air During Inspiration and Expiration. R. G. Pearce, Cleveland.—p. 369.
10 *Id. Oxygen and Carbon Dioxid Dead Space in Man. R. G. Pearce and D. H. Hoover, Cleveland.—p. 391.
11 Responses of Catfish, Amiurus Nebulosus, to Metallic and Nonmetallic Rods. G. H. Parker and A. P. Van Heusen, Boston. —p. 405.
12 Heat Liberated by Beating Heart. C. D. Snyder, Baltimore. —p. 421.

3. **Effect of Ether Anesthesia on Catalase Content of Blood.** —Burge found that the catalase content of the blood decreases during the administration of ether and increases during the recovery from ether. The decrease is due to the destruction of catalase by ether, the increase to an increased output of catalase from the liver. The decrease in catalase during the administration of ether may be the cause of the decreased oxidation during anesthesia, while the increased output of catalase from the liver during recovery may account for the increased oxidation during this period. Blood catalase is destroyed in vitro by exposure to ether vapor, as happens in vivo during the administration of ether; however, in the former case catalase is not restored to the normal amount when the ether is removed by bubbling air or oxygen through the blood, as occurs in vivo when the animal is permitted to recover from the effect of ether by breathing air. The catalase content of the blood can be increased by prolonging the excitement stage of ether anesthesia or by stimulating electrically the splanchnic nerves distributed to the liver. The increase in catalase may account for the increased oxidation during the excitement stage of ether anesthesia, just as the decrease in catalase may account for the decreased oxidation during the rest of the stages.

4. **Factors Influencing Interchange of Fluid in Blood.**—According to Scott the hemoglobin content of the blood is rapidly modified by any alteration in blood pressure, a rise of pressure leading to an increase of hemoglobin and a fall to a decrease. These results can only be explained by the increased pressure forcing fluid out of the blood to the tissue spaces and the passage of fluid back from the tissue spaces to the blood when the pressure is lowered.

5. **Id.**—The authors state that there is an increase in the water content of muscle as a result of contraction if the blood is circulating through it. There is an increase in the hemoglobin content and in the blood count as a result of muscular contraction. This is due to the passage of fluid from the blood to the muscles. In some experiments the alterations found for the hemoglobin and for the blood count are not exactly the same. The authors believe this is due to technical errors and has no physiologic significance.

6. **Albumoses in Tissues and in Blood.**—Albumoses can be isolated in varying amounts from the tissues of the body, inclusive of the cellular elements of the blood. The methods employed did not, however, enable the authors to separate a proteose of any kind from the plasma of the blood. To prepare an albumose from the gastric or intestinal mucosa which is entirely devoid of pharmacologic activity (pressor, oxytocic and secretory) requires the employment of numerous chemical procedures, as outlined in this paper. The gastro-intestinal mucosa can be washed free of soluble adherent substances, such as the proteoses. The authors feel justified in assuming that what cannot be washed away must be truly a part of the mucosa. The gastro-intestinal mucosa contains from three to five times as much albumose during digestion of meat as after deprivation of all food (except water) for four days. In view of this finding the authors cannot accept the theory that proteins are taken up by the absorbing surfaces of the digestive apparatus only in the form of amino-acids, but must believe, rather, that proteoses as well as amino-acids are freely absorbed, as has long been maintained for the former by certain investigators. While they are able to trace the further passage of amino-acids from the mucosa to various organs via the blood current, they find it impossible at present to do this with proteoses. These cannot be traced further than into the absorbing mucosa, unless it should be assumed that the cellular elements of the blood are distributing agents for them—a point of view which they are at this moment not justified in advancing. The details of the fate of the absorbed proteoses still remain to be determined.

7. **Effect of Temperature on Rhythm of Excised Intestine.**—The evidence presented by Taylor and Alvarez indicates that the rate of rhythmic contraction is determined by the chemical changes taking place in the muscle. The difference in the coefficient for the four different segments implies a difference in their metabolism.

9. **Physiology of Respiration.**—The blood in the pulmonary capillaries contains less carbon dioxid during inspiration than during expiration. The alveolar air receives a greater amount

of carbon dioxid during inspiration than during expiration. The greater amount of the carbon dioxid given off during the respiration cycle occurs at a pressure less than the mean; the less amount is given off at a pressure above mean. The alveolar carbon dioxid tension rises relatively more rapidly during the termination of inspiration and during the first part of expiration than during the latter part of expiration. This condition is due to the fact that during the first part of expiration the pressure of carbon dioxid is less than in the latter part, inasmuch as the total volume of air is reduced by the expiratory act, and each added increment of carbon dioxid is added to progressively decreasing amounts of air, and accordingly the percentage of carbon dioxid mounts very rapidly; even though the actual evolution of carbon dioxid from the blood is less at high partial pressures of carbon dioxid than at low pressures. The rate of oxygen intake of the blood is practically constant during both phases of the respiration at ordinary barometric pressures. A method based on theoretical grounds is proposed by Pearce for the determination of the gaseous composition of the alveolar air and for the capacity of the dead space for both oxygen and carbon dioxid. He believes that the results obtained by this method give very accurate values for mean tensions of carbon dioxid and oxygen in the alveolar air. Samples obtained by the Haldane-Priestley method give figures 6 to 15 per cent. higher for carbon dioxid, and 9 to 20 per cent. higher for oxygen absorbed than are obtained by this method. The dead space determined by this method fails to show as great variation as when determined by the Haldane-Priestley method, and the dead spaces for oxygen and carbon dioxid are of the same magnitude within the experimental error.

10. **Oxygen and Carbon Dioxid Dead Space in Man.**—The experiments outlined by Pearce and Hoover, together with the correct calculations of the data of Haldane, show that deep breathing, which is controlled by needs of the body, does not alter the dead space or "virtual dead space" of Henderson. When the respirations are controlled by the respiratory center and not of extreme depth: (*a*) The dead space is relatively fixed anatomic and physiologic entity. (*b*) The dead space for carbon dioxid and that for oxygen are essentially the same under all conditions. The variations which Haldane, Henderson and their associates find in the capacity of the dead space on deep breathing, and the lack of agreement between carbon dioxid and oxygen dead spaces, are attributable to faulty methods and artificial modes of breathing. The Haldane-Priestley method for the determination of the dead space for oxygen or for carbon dioxid is inaccurate. As great variations in the dead spaces as those found by Haldane and Henderson can be obtained by other methods of altering the respiration than by increasing the depth of breathing. The determination of the percentage of oxygen in the alveolar air by the Haldane-Priestley method is subject to greater error than that for carbon dioxid and any figures obtained by it for oxygen tension in the alveolar air during exercise or at reduced barometric pressures are untrustworthy.

American Journal of Roentgenology, New York

October, IV, No. 10

13 Diagnostic Points in Suppurative Diseases of Ribs and Sternum. E. G. Beck, Chicago.—p. 491.
14 *Bone Changes in Leprosy. J. A. Honeij, New Haven, Conn. —p. 494.
15 Greater Certainty in Localization of Foreign Bodies in Eye. J. G. Van Zwaluwenburg, Ann Arbor, Mich.—p. 512.
16 Surgery of Roentgen Ray Lesions. L. L. McArthur, Chicago. —p. 521.
17 Abdominal Tuberculosis. P. Eisen, Chicago.—p. 525.
18 Dental Pathology; Its Importance as Avenue of Infection. F. D. Leach, Chicago.—p. 526.
19 Renal Calculus of Unusual Size. E. H. Kessler, St. Louis.—p. 529.
20 "Quiet" Pott's Disease. W. A. Evans, Detroit.—p. 530.

14. **Bone Changes in Leprosy.**—The bone changes in leprosy observed by Honeij vary from slight thinning, atrophy or periostitis to advanced changes with total absorption of phalanges, marked inflammatory action in bone, distortion, ankylosis and fractures. Changes may begin in the periosteum, articular surfaces, corticalis or medullary canal, and apparently any of these changes or all of them may occur in the same set of bones. Also the bones of the hands and feet show the changes soonest and to the greatest extent. The tibia was in one case markedly affected, but in a number of cases the ankle joint bones were not affected. A curious exception in the hands was the thumb, the bones here being in but a few cases slightly affected. The changes in the nerve type are atrophic and in the nodular type inflammatory or hypertrophic. In these particular cases the reverse has occurred and both types of changes have appeared in each form. Periostitis is common. In the absorption process the epiphysis suffers first and most. Cyst or cavity formation is greatest in the diaphysis. Ankylosis occurs, but not healing of fractures, in which salt deposit is necessary. Ulceration of the skin is not necessary, as marked periostitis occurs without any discoverable lesion in the tissues outside the bone. Definite atrophic bone changes, without apparent change in the contour of the phalanx and periosteum, do occur. Atrophic bone changes occur in cases of nodular leprosy; demonstrating the fact that definite nerve disturbances are as much a part of nodular leprosy as inflammatory bone absorption is a part of the process in nerve leprosy. Not in a single case can it be definitely said that the destructive bone process arises internally or externally, for in a single case a periostitis may exist in one phalanx, while in another phalanx the changes are wholly medullary.

Annals of Surgery, Philadelphia

October, LXVI, No. 4

21 Handling of Early and Doubtful Cases of Cancer. R. B. Greenough, Boston.—p. 385.
22 *Technic for Radical Cautery Operation in Breast Cancer. J. F. Percy, Galesburg, Ill.—p. 397.
23 Regional Anesthesia in Extrapleural Thoracoplasty and Some Intrathoracic Operations. W. Meyer, New York.—p. 404.
24 *Advantage of Cholecystectomy in Avoidance of Adhesions in Gallbladder Surgery. A. M. Willis, Richmond, Va.—p. 411.
25 *Posture in Cases of Abdominal Drainage. R. Hill, St. Louis. —p. 414.
26 *Operative Treatment of Hour-Glass Stomach; Report of Case Treated by Double Posterior Gastro-Enterostomy. R. C. Webb, New York.—p. 418.
27 *Extent of Tissue to Be Excised for Radical Removal of Carcinoma of Stomach. W. Thalhimer and A. O. Wilensky, New York. —p. 421.
28 *Hyperplastic Pyloric Stenosis. D. W. Palmer, Cincinnati.—p. 428.
29 Giant Duodenum; Report of Case in Child. W. A. Downes, New York.—p. 436.
30 Case of Megacolon: Megasigmoid, Hirschsprung's Disease. W. R. Jackson, Mobile, Ala.—p. 441.
31 Safe Elimination of Colon for Relief of Uncontrollable Intestinal Stasis. A. J. Ochsner, Chicago.—p. 443.
32 Idiopathic Choledochus Cyst; Report of Case Cured by Choledochoduodenostomy. E. Waller, Lidkoping, Sweden.—p. 446.
33 Relative Indications for Cholecystectomy and Cholecystotomy. F. R. Benham, Syracuse, N. Y.—p. 464.
34 Torsion and Inflammation of Appendices Epiploicae; Report of Case and Review of Literature. A. H. Harrigan, New York. —p. 467.
35 *Ultimate Results Following Nephropexy in Cases of Symptomatic Nephroptosis. J. G. Clark and F. B. Block, Philadelphia.— p. 479.
36 Congenital Elevation of Scapula (Sprengel's Deformity). J. F. Binnie, Kansas City, Mo.—p. 488.
37 *New Method of Excising Head of Humerus. T. T. Thomas, Philadelphia.—p. 492.
38 Fungous Diseases of Foot, or Madura Foot, in America; Report of Case. R. Winslow, Baltimore.—p. 496.

22. Abstracted in The Journal, Jan. 13, 1917, p. 146.

24. **Cholecystectomy to Avoid Adhesions in Gallbladder Surgery.**—In a well performed cholecystectomy where no bile is split in the cavity and no drain of the liver is used, Willis says, the trauma of operation seems to be an insignificant factor in stirring up adhesions. On the other hand, in cholecystostomy and cholecystectomy where a drain is used and there occurs spilling of bile, adhesions invariably follow. From the results of his experiments Willis feels that bile is an important factor in the production of adhesions, and that it is of the utmost importance that the irritating and often infected bile should not be allowed to come in contact with peritoneum.

25. Absracted in The Journal, Jan. 13, 1917, p. 145.

26. **Operative Treatment of Hour-Glass Stomach.**—In view of the fact that gastroplasty is often unsuccessful in wide-

spreading ulcer and gastrogastrostomy is relatively dangerous in the presence of much tension, Webb is of the opinion that double posterior gastro-enterostomy is a logical operation and is definitely indicated in certain cases. He cited one successful case.

27. **Radical Removal of Carcinoma of Stomach.**—According to Thalhimer and Wilensky, in small carcinomas of the stomach, situated elsewhere than at the pylorus, the malignant process is so limited in extent that local resection at a distance of from one to two centimeters beyond the macroscopic limits of the tumor will, in the majority of instances, remove the entire tumor. Even in some of the comparatively large tumors included in the authors' study there was no extension of the tumor detectable by the microscope beyond this limit. When a malignant tumor is situated at the cardiac end of the stomach, the surgeon may either perform a complete gastrectomy or consider these cases inoperable. The serious consideration of complete gastrectomy is almost forbidden in these cases because of the high mortality of this operation. Local excision of the tumor is a far less dangerous procedure, and, since the authors' investigations have shown that such local excision is sufficient for the removal of the malignant process, these tumors become accessible for radical operative treatment. Of course such excision is only radical provided no metastases are present.

28. **Hyperplastic Pyloric Stenosis.**—Palmer reports on thirteen cases of congenital pyloric obstruction. In three of these further observation was advised; one patient died suddenly while waiting for the mother's permission to operate, and of the remaining nine, on three gastrojejunostomy was made, and on six the Rammstadt operation. Eight of the nine patients operated on had a marked tumor formation at the pylorus that could not but produce a decided obstruction to the passage of food. The average age of the eight living operated patients when last heard from was 7⅘ months, and the average weight was 17⅘ pounds, or nearly 1 pound above the average given in Holt's book.

35. **Ultimate Results Following Nephropexy.**—While the results obtained by Clark and Block are said to be by no means perfect, they nevertheless present a 70 per cent. restoration to active efficiency of the women operated on, a degree of restoration which compares favorably with many other operations generally accepted by representative surgeons. The authors call attention to the fact that the kidney, particularly the right, is not a fixed organ, and even an excessive range of mobility is no certain index of a reflex gastric or nervous disability unless direct renal symptoms referable to the kidney itself are present. The three cardinal symptoms of disturbed renal function are pain in the renal area; a urinary or Dietl's crisis, due to kinking of the ureter; or vesical irritability directly referable to the kidney of the affected side. No diagnosis should rest solely on palpation of even an unduly movable kidney or on a definite symptomatology unless this is confirmed by a cystoscopic examination, catheterization of the ureters, and a pyelograph to define the point of kinking in the ureter and the degree of dilatation of the renal pelvis. With this rigid method of exclusion and clear symptomatic definition the surgeon may confidently count on securing 70 per cent. of cures and from 10 to 15 per cent. of improvements as the result of the operation. The dangers arising from the injection of roentgenographic substances into the renal pelvis are great if piston or excessive gravity pressure is employed during the injection. With slight gravity pressure no untoward symptom has been observed in their series of cases. In the hands of the authors the Edebohls method, with slight modification, has proved satisfactory as a permanent means of anchorage.

37. **Excising Head of Humerus.**—The operation described by Thomas was performed in one case of recurrent dislocation of the shoulder and in one of old unreduced dislocation. It does not disturb any of the muscles except the subscapularis, which is divided, but later is reunited. Only the cartilage covered portion of the humeral head is removed by sawing through at the anatomic neck. This prevents recurrences of the dislocation, because it removes the only portion which can be dislocated, while it does not disturb any of the muscle attachments except that of the subscapularis, which reunites closely later. In the old unreduced dislocation this operation removes the bony obstruction to the ascent of the remaining portion of the humerus to its normal level just below the acromion process.

Archives of Internal Medicine, Chicago

October, XX, No. 4

39 *Study of Uric Acid in Gout. C. W. McClure and J. H. Pratt, Boston.—p. 481.
40 Ferment Antiferment Balance and Its Relation to Therapeusis. W. F. Petersen, Chicago.—p. 515.
41 Relation of Pellagra to Location of Domicile in Inman Mills, Inman, S. C. J. F. Siler, P. E. Garrison and W. J. MacNeal, New York.—p. 521.
42 *Absorption of Phenolsulphonephthalein from Subarachnoid Space in Diseases of Central Nervous System. H. G. Mehrtens and H. F. West, San Francisco.—p. 575.
43 *Study of Erythrocytes in Case of Severe Anemia with Elongated and Sickle-Shaped Red Blood Corpuscles. V. E. Emmel, Chicago.—p. 586.
44 *Cholesterol Content of Human Blood. F. D. Gorham, St. Louis, and V. C. Myers, New York.—p. 599.
45 Temperature Method in Localization of Cardiac Pacemaker. B. H. Schlomovitz, Chicago, and C. S. Chase, Iowa City, Iowa. —p. 613.
46 Pyopneumothorax and Pneumothorax; Report of Two Cases. J. A. Honeij, New Haven, Conn.—p. 629.
47 Asthma Complicating Serum Treatment of Pneumonia. H. L. Alexander, Boston.—p. 636.

39. **Uric Acid in Gout.**—The authors' studies on the intravenous injection of uric acid and the feeding of nuclein containing material, together with the compilations they have made from reports in the literature, show that in normal and nongouty as well as in gouty persons there is great variability in the quantity and in the duration of exogenous uric acid excretion. For this reason a diminished or a protracted exogenous uric acid output most probably results from factors other than disturbances in the nuclein intermediary metabolism. If this is not true, then derangements in nuclein metabolism are so common that their importance in the etiology of any diseased condition is problematic. In the majority of gouty persons the uric acid in the blood is more than 3 mg. per hundred c.c. when determined by the method of Folin and Denis. No relation exists between the amount of uric acid and of total nonprotein nitrogen found in the blood of gouty persons. A marked retention of nonprotein nitrogen is not frequent in gout. The excretion of exogenous uric acid by normal, by arthritic, and by gouty persons varies greatly both in amount and in duration. The retention of exogenous uric acid is regarded as a symptom of questionable importance in the diagnosis of gout.

42. **Phenolsulphonephthalein Absorption.** — Mehrtens and West summarize their paper as follows: Phenolsulphonephthalein when injected into the subarachnoid space in normal persons appears in the urine in ten minutes or less. Diseases of the central nervous system, especially when involving the meninges, produce a lengthening of the appearance time to as much as seventy minutes in some cases. This delay cannot be accounted for by disease of the kidneys, or by the reduction of the phenolsulphonephthalein in the spinal fluid. Advanced general arteriosclerosis may be a factor in causing the delay in some instances. In syphilis a lengthening of the appearance time may be produced before any other evidence of central nervous system involvement has appeared. The method may prove of value in detecting instances of organic central nervous system disease in which the ordinary spinal fluid findings are negative or incomplete. At this time no definite conclusion can be drawn as to the exact location of the absorbing tissues.

43. **Erythrocytes in Anemia.**—The patient, aged 21, entered the hospital with an ulcer on the leg. The ulcer healed under treatment and after her discharge from the hospital, Dec. 3, 1914, the patient gained in weight and showed general improvement. An ulcer had appeared on the leg at two previous times in her history, the first at the age of 5, and the second at the age of 19. In both instances, with treatment, it soon healed. The third appearance occurred ten months previous to the patient's entering the hospital. Aside from this ulceration the physical examination otherwise furnished

apparently little data of evident significance. Examinations for syphilis or parasites were negative. The blood picture constituted the most striking feature of the case and has been more or less persistent up to date, a period of over two and one-half years. About one third of the erythrocytes instead of presenting the normal disk form are greatly elongated in shape. A large percentage of the latter have a crescentic or sickle-shaped form. Nucleated erythrocytes occurred in all preparations. Some of the normoblasts present a biconcave disk shape. Punctate basophilia occurs in many of the nucleated red corpuscles, but was not observed in either the disk-shaped or sickle-shaped nonnucleated corpuscles. Jolly bodies or Cabot rings were not found. Phagocytosis of erythrocytes is taking place to a certain extent in the peripheral circulation. In culture preparations kept at room temperature it was found that great numbers of the previously disk-shaped corpuscles became transformed into elongated and crescentic elements. The tips of the latter were frequently extended into tapering hair-like processes. During one period of the study, for some unknown reason, the abnormal crescentic forms had temporarily disappeared from the circulation. In culture preparations, however, the erythrocytes still manifested the tendency to assume elongated and crescentic forms. Similar cultures from normal blood and from cases of pernicious anemia, chlorosis and myelogenous leukemia gave only negative results.

An interesting exception was obtained in the case of the patient's father. In this instance the circulatory erythrocytes presented an apparently normal structure, but under culture conditions occasional corpuscles were found to assume elongated and crescentic forms. In culture preparations made by placing erythrocytes from a case of pernicious anemia in the centrifuged serum of the patient's blood, some of the red corpuscles assumed characteristics comparable to those observed in cultures of the patient's blood. The culture reaction of the erythrocytes appears to be specific for this case of anemia, and the manner in which the red blood corpuscles are transformed into the sickle-shaped elements suggests that the phenomenon is in part at least due to an accentuated or abnormal activity of the same factors which in normal hematogenesis are involved in the transformation of the original spherical erythrocyte into a biconcave disk-shaped form.

44. **Cholesterol Content of Human Blood.**—Cholesterol estimations were made by Gorham and Myers in the blood of about 200 patients, suffering clinically from about twenty-five different diseases. Hypercholesterolemia was observed, though not invariably, in arteriosclerosis, nephritis, obstructive jaundice and diabetes. A hypocholesterolemia was found in the cachexia of malignancy and all anemias of the pernicious type. The low cholesterol values encountered in the blood plasma of patients with pernicious anemia are regarded as of considerable significance, especially in view of the strong antihemolytic action of cholesterol. The findings in cholelithiasis were quite inconstant. Since hypercholesterolemia may be found in many conditions and is not uniformly constant in cholelithiasis, it would seem that the blood cholesterol possessed only a limited diagnostic usefulness in this condition. It is suggested that the estimation may possess some diagnostic value in diabetes, since the cholesterol serves as an easily determined index of any lipemia.

Boston Medical and Surgical Journal

October 25, CLXXVII, No. 17

48 Bearings of Industry on Medical Practice. D. L. Edsall, Boston.—p. 575.
49 Activities of Labor Department. E. Mulready, Rockland.—p. 576.
50 Adjustment of Physical Defectives to Employment. W. I. Clark, Worcester.—p. 578.
51 Establishment of First Aid Hospital in Industry. H. J. Cronin, Cambridge.—p. 580.
52 Changing Methods and Advances in Treatment of Progressive Deafness from Chronic Secretory Otitis Media. F. P. Emerson, Boston.—p. 583.
53 Etiology of Disturbances of Heart Beat. G. E. Barnes, Herkimer.—p. 588.
54 *Case of Brain Tumor Showing Extensive Destruction, with Few Diagnostic Symptoms. H. E. Thompson, Worcester.—p. 592.
55 Hemorrhage Following Tonsillectomy. H. H. Amsden, Concord, N. H.—p. 594.

54. **Brain Tumor Showing Extensive Destruction.**—Thompson reports a case of glioma of the brain in a man, 70 years of age, causing extensive destruction of the brain tissue. It involves the corpus callosum, white matter of the left frontal lobe, caudate and lenticular nuclei and internal capsule. The mental symptoms showed themselves by a tendency to wander about, increased irritableness and loss of memory. An early symptom was the loss of control of the sphincters. The history is one of occasional seizures, characterized by pallor, rigidity and confusion, followed by prolonged sleep. As the disease progressed, memory loss and confusion increased. Twenty days before his death the patient was able to walk with a normal gait, and the hand grips, although weak, were equal. Pupils reacted normally and tendon reflexes showed nothing unusual. The eye grounds were not examined. As his mental confusion progressed it became necessary to keep the patient in bed and feed him with a spoon, but no paralysis of either upper or lower extremities was noted; neither were any speech difficulties mentioned. Headache is nowhere mentioned in the case, either before or after admission to the hospital. The case seems interesting on account of the poverty of diagnostic features as compared with the extensive destruction of brain tissue.

Canadian Medical Association Journal, Toronto

October, VII, No. 10

56 From Vague to Concrete in Science and Medicine. F. Harris, Halifax.—p. 865.
57 Sanitary Records of Houses. J. A. Baudouin. Montreal.—p. 879.
58 Care and Treatment of Mental Defectives. H. MacMurchy, Toronto.—p. 893.
59 Case of Hysteria in Male. C. Meyers, Toronto.—p. 896.
60 Cases of Carcinoma of Cervix Uteri. C. E. Holbrook, Montreal.—p. 906.
61 Deficiency Diseases of Infancy and Childhood. A. Brown, Toronto.—p. 911.

Colorado Medicine, Denver

October, XIV, No. 10

62 The Physician's Duty in Time of War. A. C. Magruder, Colorado Springs.—p. 260.
63 The Call to Duty. J. C. Gunter.—p. 267.
64 The French Military Medical Service. F. Trêves.—p. 270.
65 National Defense. J. A. B. Scherer, Washington, D. C.—p. 272.
66 Conjunctival Epithelioma at Limbus. W. H. Crisp, Denver.—p. 273.

Florida Medical Association Journal, Jacksonville

October, IV, No. 4

67 Creeping Eruption. J. L. Kirby-Smith, Jacksonville.—p. 95.
68 Management of Increased Blood Pressure. J. V. Freeman, Jacksonville.—p. 100.
69 Treatment of Chronic Gonorrhea. H. A. Mills, Jacksonville.—p. 103.
70 Baths in Neurasthenia. J. Reeve, DeLand.—p. 105.
71 Tinnitus in Neurasthenia. F. J. Walter, Daytona.—p. 106.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

October, X, No. 4

72 Action of Certain Emetin Derivatives on Amebae. F. L. Pyman and C. M. Wenyon.—p. 237.
73 *Action of Alypin, Eucain, Holocain, Novocain and Stovain on Bladder. J. A. Waddell, Charlottesville, Va.—p. 243.
74 *Action of Epinephrin in Inhibiting Flow of Pancreatic Secretion. F. C. Mann and L. C. McLachlin, Rochester, Minn.—p. 251.
75 *Nondependence of Protein Quotient in Blood Serum on Rapidity of Metabolism with Especial Reference to Noneffect of Antipyretics, Sodium Cacodylate and Thyroid Extract. S. Hanson and I. McQuarrie, San Francisco.—p. 261.
76 Physiologic Action of Cordyceps Sinensis. J. F. Brewster and C. L. Alsberg, Washington, D. C.—p. 277.
77 *Fate of Strychnin in Body. R. A. Hatcher and C. Eggleston, New York.—p. 281.

73. **Action of Alypin, Eucain, Holocain, Novocain and Stovain on Bladder.**—Waddell found that alypin, alpha and beta-eucain, holocain, novocain and stovain stimulate the excised bladder when suspended in oxygenated Tyrode's solution at body temperature. Compared with cocain, the stimulating action of beta-eucain is approximately one-seventh; of novocain, one-sixth; of alypin, alpha eucain and stovain, one-third; and of holocain, two-thirds. Mixtures of the synthetic cocain substitutes with each other give simple summation on the excised bladder. Combinations with epinephrin exhibit simple antagonism and with pituitary extract simple summa-

tion on the excised bladder. Paralysis of the parasympathetic myoneural junctions by atropin does not alter the response of the excised bladder to any of the drugs of this series. The conclusion drawn is that these drugs act on the muscle directly, since their effects are the opposite to those of sympathetic stimulation and are unchanged by paralysis of the parasympathetic myoneural junctions.

74. **Epinephrin Inhibiting Flow of Pancreatic Secretion.**—Experiments conducted by Mann and McLachlin showed that large doses of epinephrin, which produce a marked rise of blood pressure, always decrease the flow of pancreatic secretion. Very small doses usually also decrease the activity of the pancreas regardless of whether a pressor or depressor action of blood pressure is produced. Epinephrin also decreases pancreatic volume at the same time it decreases pancreatic flow, regardless of its effect on the general blood pressure. While it is not stated definitely that epinephrin does not specifically inhibit the pancreatic cells, it would seem that the action of epinephrin in inhibiting the pancreatic secretion depends on the amount of blood passing through the gland. Large doses of epinephrin, even though general blood pressure is greatly increased, decrease the amount of blood to the pancreas by excessive local constriction, and thus decrease the flow of pancreatic juice. Small doses may or may not affect the secretion of the pancreas, depending on whether the relation of the local constriction and the changes in general blood pressure change the amount of blood going to the gland. The pancreatic vessels may constrict with a dose which will produce enough dilatation elsewhere to cause a decrease in general blood pressure, or which may not produce enough general action to affect blood pressure at all. In every case the cause is the same, a reduction of the amount of blood passing through the gland per unit of time. However, these results all tend to accentuate the fact that the pancreatic vessels seem to be more sensitive toward the pressor action of epinephrin than those of any other region concerning which data are available.

75. **Nondependence of Protein Quotient**—According to Hanson and McQuarrie, antipyrin, even in large doses, causes no change in the serum proteins. Substances most intimately related to antipyrin in their pharmacologic action (acetanilid and paramidophenol) have no effect on the protein quotient. Other substances influencing metabolism (*a*) in the direction of retardation (quinin and sodium cacodylate), or (*b*) in the direction of acceleration (thyroid extract), produce no change in the relative proportions of the serum proteins. These experimental results consistently indicate that the quantity of albumins and globulins in the blood serum is quite independent of the rapidity of the nitrogenous metabolism.

77. **Fate of Strychnin in Body.**—Experiments carried out by Hatcher and Eggleston on cats, dogs and guinea-pigs showed that toxic doses of strychnin may be administered at short intervals during periods up to twelve days, the total amounts so administered being equal to twenty-five times the single fatal dose, without causing perceptible lasting effects. Only a small percentage of the strychnin so administered can be recovered from the urine, and none from the feces. The excretion in the urine usually ceases within twenty-four to forty-eight hours. The tissues of the guinea-pig (exclusive of the skin, which was not examined) do not yield any strychnin even after the administration of very large amounts provided that death does not take place within three hours after the administration of the last dose. The facts just stated point conclusively to the rapid destruction of the strychnin in the body of the guinea-pig and almost as conclusively to that in the bodies of the cat and dog.

Perfusion of the liver of the dog and that of the guinea-pig with defibrinated blood or Locke's solution to which strychnin has been added results in the destruction of a large part of the strychnin, and the storage of a greater portion of the remainder than can be accounted for by the proportion of the perfused fluid held in the liver. The strychnin stored in the liver is loosely bound and the greater part of it may be removed by perfusing once with an amount of Locke's solution equal to several times the weight of the liver. Strychnin is not destroyed in all cases when it is added to defibrinated blood or hashed liver tissue and allowed to stand at body temperature for several hours, but there is some evidence that small amounts may be destroyed in this way under slight differences in conditions which Hatcher and Eggleston have not determined. Strychnin is destroyed slowly, or not at all, when it is added to the guinea-pig's intestine and its contents and the mixture is allowed to stand at body temperature for twenty-four hours. Strychnin is not excreted in the bile after its intravenous injection into the dog.

Journal-Lancet, Minneapolis

October 15, XXXVII, No. 20

78 Transverse Incision in Upper Abdomen. E. P. Quain, Bismarck, N. D.—p. 657.
79 Tuberculosis Problem in Minnesota. H. M. Bracken, Minneapolis.—p. 664.
80 Roentgenology in Medicine and Surgery. N. J. Nessa, Sioux Falls, S. D.—p. 671.
81 Some Commoner Diseases of Eye, Ear, Nose and Throat. J. D. Lewis, Minneapolis.—p. 674.
82 Use of Bacillus Lactis Bulgaricus in Treatment of Infected Wounds. W. A. Fansler, Minneapolis.—p. 679.

Laryngoscope, St. Louis

October, XXVII, No. 10

83 New Method of Working Out Difficult Mechanical Problems of Bronchoscopic Foreign Body Extraction. C. Jackson, Philadelphia.—p. 725.
84 Tracheobronchial Diphtheria; Report of Cases. H. L. Lynah, New York.—p. 734.
85 Epithelioma of Middle Ear and Mastoid; Report of Case. F. A. Burton, San Diego, Calif.—p. 755.
86 Vincent's Angina; Report of Cases. F. Carroll, Cedar Rapids, Iowa.—p. 763.
87 Experience with Beck-Pierce Tonsillectome. H. Dupuy, New Orleans.—p. 769.

Medical Record, New York

October 27, XCII, No. 17

88 Relation of Spleen to Certain Obscure Clinical Phenomena. W. J. Mayo, Rochester, Minn.—p. 705.
89 Field of Neurologic Surgery. W. Sharpe, New York.—p. 711.
90 Lumbar Puncture in Seven Hundred Cases. Y. C. Lott, New York.—p. 717.
91 Appearance of Fundus Oculi in Certain Intracranial Conditions. J. A. Kearney, New York.—p. 720.
92 Pernicious Anemia. J. F. Jenkins, Opelika, Ala.—p. 721.
93 New Surgical Treatment of Atrophic Rhinitis: Enlarging the Inferior Turbinate. E. A. Griffin, Brooklyn.—p. 723.

Medicine and Surgery, St. Louis

October, I, No. 8

94 Obscure Tarsal and Malleolus Fractures; Report of Cases. W. P. Coues, Boston.—p. 801.
95 Screw Fixation in Joint Fractures; Report of Cases. A. P. C. Ashhurst, Philadelphia.—p. 812.
96 Case of Melanocarcinoma Showing Its Stealthy Nature and Rapidly Malignant Course. P. G. Skillern, Jr., Philadelphia.—p. 822.
97 "Bipping" of Blacksmithing; Treatment of Fractures. D. H. Stewart, New York.—p. 828.
98 Syphilis of Joints. J. K. Young, Philadelphia.—p. 836.
99 Nitrous Oxid Oxygen Anesthesia. E. L. King, New Orleans.—p. 843.
100 Uniform Standardization of Roentgenographic Technic. F. H. Kuegle, Omaha.—p. 848.
101 Some Orthopedic Suggestions for Everyday Use. C. L. Lowman, Los Angeles.—p. 866.
102 Review of Some Recent Work on Treponema Pallidum. H. H. Hazen, Washington, D. C.—p. 875.

Modern Hospital, St. Louis

October, IX, No. 4

103 Federal Inspection and Control of American Hospitals. R. J. Wilson, New York.—p. 233.
104 Hospitals and Workmen's Compensation. T. Howell and K. Buckley, New York.—p. 234.
105 Addison County Hospital, Middlebury, Vt. H. L. Walker, New York.—p. 240.
106 The Public Health Work of Children's Hospital. C. V. Dorwarth, Philadelphia.—p. 242.
107 Industrial Hospital Managed by Employees. H. B. Smith.—p. 244.
108 Family as Unit of Public Health Work. M. Beard, Boston.—p. 247.
109 Unique Attempt to Express Medical Service without Charity. R. Pollock, San Diego, Calif.—p. 251.
110 Standardization of Hospitals—Class IV, Small Semipublic Hospitals. J. A. Hornsby and others.—p. 253.
111 Reorganization of Civilian Hospital on War Basis. W. H. Smith.—p. 262.

New York Medical Journal

October 27, CVI, No. 17

112 War Tetanus. L. H. Cornwall, New York.—p. 773.
113 Bringing Up of Children and Nervous Diseases. A. Stern, New York.—p. 777.
114 Diabetes Mellitus. I. W. Held and M. H. Gross, New York.—p. 780.
115 Two Cases of Inflammatory Stricture of Right Ureter Due to Pelvic Abscess Following Ureterotomy of Left Ureter. W. H. McNeil, Jr., New York.—p. 786.
116 Circumcision. F. D. Austin, Charlotte, N. C., and T. G. Sharpe, Greenville, S. C.—p. 787.
117 Applicability of Desiccation Surgery to Eye Conditions. J. A. Kearney, New York.—p. 788.
118 Case of Puerperal Eclampsia. M. Cohen, Montclair, N. J.—p. 789.
119 Anilin Poisoning. V. C. Baker, New York.—p. 790.
120 Carrel's Method of Treatment of Infected Wounds. G. Loewy, New York.—p. 798.

Pennsylvania Medical Journal, Athens

October, XXI, No. 1

121 Present Status of Drugless Therapy in State of Pennsylvania. J. M. Baldy, Philadelphia.—p. 3.
122 Clinical Value of Electrocardiography. S. C. Smith, Philadelphia.—p. 10.
123 Acidosis. H. Wilson, Somerset.—p. 20.
124 Early Diagnosis of Chronic Heart and Kidney Deficiency. F. A. Faught, Philadelphia.—p. 23.
125 Transplantation of Tibia for Nasal Deformity. N. P. Stauffer, Philadelphia.—p. 26.
126 Treatment of Infection Following Labor, Mature and Premature. P. B. Bland, Philadelphia.—p. 28.
127 Management of Digestion in Pulmonary Tuberculosis. J. Daland, Philadelphia.—p. 32.
128 Practical Value of Immunologic Methods in Diagnosis. J. A. Kolmer, Philadelphia.—p. 37.
129 Anatomy, Physiology and Pathology of Blood Vascular System. F. F. D. Reckord, Harrisburg.—p. 41.

Public Health Journal, Toronto

September, VIII, No. 9

130 Preventive Medicine. G. E. DeWitt, Wolfville, N. S.—p. 211.
131 Epidemiology of Epidemic Poliomyelitis or Infantile Paralysis. A. G. Nicholls, Halifax, N. S.—p. 215.
132 Diagnosis of Anterior Poliomyelitis. C. Miller, Stellarton, N. S.—p. 219.
133 Acute Anterior Poliomyelitis. M. D. Morrison, Dominion, N. S.—p. 223.
134 Venereal Disease Problem. W. H. Hattie, Halifax.—p. 228.

October, No. 10

135 Value of Statistics in Public Health Work. M. M. Seymour, Regina, Sask.—p. 245.
136 Medical Supervision of Schoolchildren. H. A. Payzant, Dartsmouth, N. S.—p. 251.
137 Some Medicosociologic Problems Arising Out of War. W. H. Hattie, Halifax, N. S.—p. 254.
138 Medical Aspects of Tobacco Habit. D. F. Harris, Halifax, N. S.—p. 259.
139 Conservation of Life. J. J. Cameron, Antigonish, N. S.—p. 263.
140 Sanitation of Factories. P. Ring, Halifax, N. S.—p. 266.

United States Naval Medical Bulletin, Washington, D. C.

October, XI, No. 4

141 Tuberculosis and Military Organization. A. C. Klebs, Washington.—p. 439.
142 Diagnosis and Prognosis in Cardiovascular Renal Patients. H. A. Hare.—p. 459.
143 Some First Impressions of Virgin Islands, Medical, Surgical and Epidemiologic. C. S. Butler and E. G. Hakansson.—p. 465.
144 Training Camp, Naval Reserve Force, Second Naval District. D. N. Carpenter.—p. 475.
145 Temporary Barracks at City Park, Brooklyn, Preliminary Sanitary Survey. W. S. Pugh and R. Jansen.—p. 479.
146 Organization of Naval Medical Corps, Sixth Naval District. G. W. Calver.—p. 497.
147 Present Status of Cerebrospinal Fever with Special Reference to Diagnosis and Control. H. S. Cumming.—p. 504.
148 System in Handling Dental Patients Aboard Ship. R. Barber.—p. 515.
149 Barium Formaldehyd Method of Disinfection. R. P. Crandall.—p. 519.
150 Convenient Device for Testing Vision. W. S. Thomas.—p. 533.
151 Simplified Eye Testing Case. R. B. Henry.—p. 533.
152 Motor Operating Field Room. E. K. Tullidge.—p. 535.
153 Death from Shark Bite. P. F. Prioleau.—p. 539.
154 Dermatitis Produced by Matches Carried in Pocket. W. E. Eaton.—p. 540.
155 Amebiasis with Constipation. E. A. Vickery and J. J. A. McMullen.—p. 540.
156 Multiple Gunshot Wounds Resulting from Deflected Bullets. W. A. Bloedorn.—p. 541.
157 Multilocular Cyst. W. L. Mann and F. L. Conklin.—p. 543.
158 Impermeable Dressings in Treatment of Burns. J. J. A. McMullen.—p. 544.
159 Method of Locating Bullets and other Foreign Bodies by Roentgen Ray. S. Tousey.—p. 544.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Tuberculosis, London

October, XI, No. 4

1 Heliotherapy in Great Britain. C. E. Warner.—p. 143.
2 Papillary Cutaneous Reaction in Tuberculosis. H. A. Ellis.—p. 151.
3 Types of Tubercle Bacilli in Human Tuberculosis. A. S. Griffith.—p. 160.
4 Prevention and Cure of Tuberculosis. G. L. Cox.—p. 165.
5 Open-Air Industrial Experiment for Tuberculous Cases; Hairmyres Colony, Lanarkshire. N. Bardswell.—p. 169.

British Medical Journal, London

October 6, II, No. 2962

6 Anglo-Russian Hospitals. H. F. Waterhouse, W. D. Harmer and C. J. Marshall.—p. 441.
7 *Method of Early Closure of Recent Gunshot Wounds. W. H. Hey.—p. 445.
8 *Spread of Infection in Open Bone, and Its Bearing on Treatment of Projectile Fracture. E. K. Martin and G. F. Petrie.—p. 447.
9 *Method for Efficient Drainage of Knee Joint. A. W. Mayo-Robson.—p. 450.
10 Five Hundred Consecutive Cases of Acute Gonorrhea Treated with Vaccines. N. P. L. Lumb.—p. 450.
11 Case of Gonorrheal Keratosis. W. H. Brown and A. M. Davidson.—p. 453.

October 13, No. 2963

12 Canadian Army Medical Service. J. T. Fotheringham.—p. 471.
13 Etiology of Trench Fever. A. M. Pappenheimer, H. N. Vermilye and J. H. Mueller.—p. 474.
14 Method to Facilitate the Isolation of Cholera Vibrio and Other Organisms. A. Castellani.—p. 476.
15 Adaptation of Thomas and Jones Splints to Obtain Fixation of Arm in Abducted Position While Patient is Ambulatory. R. B. Osgood.—p. 477.
16 Splint for Treatment of Gunshot Wounds Involving Shoulder Joint. J. Campbell.—p. 480.
17 *Pneumococcal Meningitis. C. Worster-Drought and A. M. Kennedy.—p. 481.
18 Inquest on a Leg. N. Porritt.—p. 483.

7. **Early Closure of Gunshot Wounds.**—Hey brings forward the use of a mechanical aid to excision of the wound, namely, the staining of the track of the missile with a 0.5 per cent. watery solution of brilliant green and, second, the use of a paste as the method of sterilization. The composition of this paste is the following: boric acid, 11 ounces; French chalk, 1 ounce; liquid petrolatum, 8 fluidounces; brilliant green (1:500), 17½ grains. The boric acid and French chalk are first intimately mixed in a mortar, then the liquid petrolatum is worked in, and finally the brilliant green dissolved in rectified spirit. Considerable time and energy are required to avoid a paste with many isolated masses of boric acid. It is kept in jars and used chiefly from large syringes with very wide nozzle apertures or from grease pumps. Departures from the quantities and constituents of this paste have been invariably productive of worse results. If the chalk is omitted it will not adhere to any but the driest and freshest of wounds, and intimate adhesion to the tissues is an essential quality of a paste. No toxic effects have been observed. A strong, firm scar rapidly results; the skin unites well over a cavity such as is left by a pulped tibia. Extensive wounds of the buttock, and wounds complicated by division of large arteries or by fracture of any of the long bones, have been quickly closed. Fractures have been successfully sutured in three to five days, and wounds dividing muscle have been closed by partial primary suture with safety, which must be the outstanding feature of any method. Hey pleads for complete excision of all wounds; without it good antiseptics and pastes are almost useless in quickly healing the broken skin.

8. **Spread of Infection in Open Bone.**—The following conclusions are drawn by Martin and Petrie with reference to the operative treatment of projectile fracture: Some are already well recognized, none are universally practiced. Soft parts killed by the direct effect of the missile require removal. An infected fracture of the shaft of a long bone requires opening to the full extent of solution of continuity. In infected fracture of cancellous bone the superficial débris of smashed trabeculae, etc., requires removal. Solid bruised bone is able to resist infection and may be left. As penetration is at its maximum in the first few days, early opera-

tion is essential, especially in fractures of cancellous bone involving joints. Every artery directly or indirectly supplying a fractured bone is of importance in the defence against infection. In the presence of vascular injury proximal to the fracture, radical measures, such as amputation or resection of a joint may be adopted with less hesitation.

9. **Method for Efficient Drainage of Knee Joint.**—By means of proper position of the leg Mayo-Robson makes the suprapatella pouch the dependent part of the joint, and by the very simple operation of inserting a tube into the top of the pouch the whole joint can be completely evacuated and purified, and if this is done sufficiently early, a speedy recovery may be anticipated with the joint mobility unimpaired. Two changes of position will make the suprapatellar pouch dependent: (*a*) the vertical position of the limb at right angles to the body with the patient in the dorsal decubitus, or (*b*) the prone position of the body with the foot of the bed well raised. In both positions the limb must be efficiently fixed on a splint, as fixation in inflammation of the knee joint is only second in importance to drainage. If for any reason the vertical position is inconvenient or difficult to carry out, the prone position can be adopted, the foot of the bed being raised and the limb slung from above by pulleys and weights for the thigh and leg. As the prone position is irksome if prolonged, the patient, when once the joint has been emptied, may, if necessary, be turned on his back and the prone position adopted for from half an hour to an hour every four hours at first, and later about three times in the day, until the drain can be dispensed with. When once the joint has been thoroughly evacuated of its septic contents, and if needful gently washed out with warm normal saline solution, the synovial membrane of the knee, like the peritoneum, is capable of taking care of itself. Long continued drainage is very seldom required, and usually a movable joint will be obtained.

17. **Pneumococcal Meningitis.**—Nine cases of pneumococcal meningitis have come under the care of Worster-Drought and Kennedy. In five cases the disease was the so-called primary form; that is, no lesion conceivably due to active pneumococcal infection was discovered elsewhere. Of the five cases, two were infants and two were adults. The adults had had catarrhal colds for three or four days, followed by severe headache, prior to the appearance of meningeal symptoms, while the younger infant had had sudden convulsions. Following the appearance of headache, vomiting occurred in four of the five patients, and delirium rapidly supervened in the two adults. Of the four cases in which meningitis occurred as a secondary infection to a focus elsewhere, in two the primary lesion was a lobar pneumonia, in one middle-ear disease, and, in the last, an empyema of the sphenoidal sinus.

Edinburgh Medical Journal

October, XIX, No. 4

19 Pyorrhea Alveolaris. J. H. Gibbs.—p. 219.
20 Treatment of Yaws by Salvarsan and Allied Remedies. R. de Boissiere.—p. 226.
21 Writer's Cramp and Allied Affections; Their Treatment by Massage and Kinesitherapy. D. Graham.—p. 231.
22 Preparation of Dry Specimens for War Office Collection. G. Richardson.—p. 239.

Journal of Tropical Medicine and Hygiene, London

October 1, XX, No. 19

23 Case of Localized Gangrenous Vaccinia. A. J. Chalmers and R. G. Archibald.—p. 217.
24 Keratodermia Punctata. A. J. Chalmers and A. Kamar.—p. 218.
25 Tropical Diseases Met with in Balcanic and Adriatic Zones. A. Castellani.—p. 219.

Lancet, London

October 13, II, No. 4911

26 *Investigation into Effects of Cold on Body. N. C. Lake.—p. 557.
27 Chemical Affinities of Vibrio Cholera. L. Nicholls.—p. 563.
28 *Normal Gundeafness. T. B. Jobson.—p. 566.
29 Case of Traumatic Rupture of Heart. G. R. Turner and L. P. Gould.—p. 567.
30 Gastric Digestion of Various Foodstuffs After Gastro-Enterostomy. A. A. Wolkoff and E. E. Klopfer.—p. 568.
31 Case of Compound Fracture of Patella Treated by Wiring; Complete Functional Recovery. J. B. Hance.—p. 569.
32 Surging Galvanic Current in Treatment of Paralysis. E. P. Cumberbatch.—p. 570.
33 Case of Ruptured Uterus with Unruptured Membranes. H. Shufflebotham.—p. 571.
34 Case of Adenocarcinoma of Appendix. J. A. C. Macewen.—p. 571.

26. **Effects of Cold on Body.**—Lake summarizes his paper as follows: (1) The temperature, 6 C., must be considered critical in relationship to the effects of cold on the tissues. (2) Degrees of cold below this temperature produce true frost bite and actual damage to tissues. (3) Degrees of cold above this temperature only produce effects secondarily by causing vasomotor paralysis. (4) Nerve blocking does not prevent either the effects of frost bite or of chilling. (5) The use of vasoconstrictors delays the swelling in cases of true frost bite, while in cases of chilling the exudation may be entirely prevented. (6) Satisfactory treatment of trench foot must be directed toward preventing any appreciable rise in capillary pressure. (7) In the production of trench foot cold must be considered the essential factor, other factors being either secondary or subsidiary. (8) Treatment by the use of vasoconstrictors, either intravenously or otherwise, would appear logical and worthy of trial. (9) Treatment by nerve blocking, either regional or central, is also suggested, although, in all probability, it cannot be expected to give good results unless used in conjunction with vasoconstrictors. (10) Prophylaxis consists in using any and every means of preventing congestion of the legs, and in avoiding, so far as possible, variations in the temperature. (11) The question as to whether any surgical procedure, such as temporary occlusion of the arteries, would bring about the desired reduction in capillary pressure is being investigated.

28. **Normal Gundeafness.**—Jobson endeavored to ascertain what proportion of soldiers exposed to gunfire go deaf, to measure, so far as possible, the amount of deafness produced in a previously healthy ear, to ascertain whether this deafness is temporary or permanent, and to investigate the type of deafness so produced. Sixty soldiers were examined. Many of the cases gave a history of severe or complete deafness for one or more days after exposure in a big "strafe," but almost invariably said they could now hear quite well. The cases were all infantry men, who would not be so close to big gunfire as the artillery. The conclusion of Lake's study was that exposure to gunfire in the present war often produces rapidly a permanent deafness. This normal—if the author may so call it—gundeafness is of a very definite type—a mixed obstructive and nerve deafness. The amount of deafness as shown by a C 2 fork is about ten seconds, aerial conduction, and four seconds of bone conduction.

Medical Journal of Australia, Sydney

September 15, II, No. 11

35 Ankylostomiasis in Papua. J. H. Waite.—p. 221.
36 Treatment of Syphilis in Australian Army. H. H. Griffith.—p. 223.
37 Case of Pericarditis Complicating Pneumonia in Infant. E. A. Tivey.—p. 227.
38 Epithelioma of Lip. W. A. Reid.—p. 227.
39 Strangulated Hernia in Child Three Weeks Old. J. H. Ingham.—p. 227.

Archives Médicales Belges, Paris

September, LXX, No. 9, pp. 793-896

40 *Treatment of Shock. W. H. Bayliss.—p. 793.
41 Vincent's Angina with Eruption: Two Cases. P. Nolf, A. Colard and P. Spehl.—p. 802.
42 Devices to Correct Paralysis of Hand and Leg. Privat and Belot.—p. 807.
43 *Nitrogen Minimum Ration. F. Malengreau.—p. 819.
44 The Value of Antitetanus Serum. J. Voncken.—p. 834.
45 The Medical Service in the Belgian Schools in London.—Schuermans.—p. 881.

40. **Treatment of Shock by Intravenous Injection of Gum Acacia.**—Bailiss is professor of physiology at the University College, London. He here discusses shock with subnormal blood pressure from loss of blood. The first indication, he says, is to restore the blood to approximately its normal volume, viscosity and osmotic pressure. Unless the injected fluid corresponds in these three points, it will fail to that extent in its purpose. In Bailiss' experiments on animals he found that intravenous injection of Ringer's fluid did not restore the blood pressure to normal. But with addition of 6 per cent. gum acacia to the fluid the blood pressure returned to normal. This evidently provided for a normal standard

of viscosity in the circulating blood. Army surgeons are finding solutions of gum acacia useful in the wounded when the drop in blood was due wholly or in part to the losses of blood. Bailiss noticed also in his experiments on animals that even the immediate benefit on the blood pressure from the solution of gum acacia surpassed that from ordinary saline solution, while the effect was permanent. The effect of Ringer's solution was quite transient. A 6 or 7 per cent. solution of gum acacia displays the same osmotic pressure as normal blood in parchment osmometers. The walls of the blood vessels, the same as parchment, are impermeable to colloids, and osmosis proceeds alike in both. When the osmotic pressure of the colloidal substances in the blood is diminished by dilution with a salt solution, filtration through the glomeruli occurs more rapidly than normal, so that the physiologic saline injected intravenously has a tendency to be eliminated in the urine, or it infiltrates into the tissues and may induce edema at various points. All who have made experiments on surviving organs perfused with Ringer's fluid have noticed sooner or later a tendency to edema. This does not occur if gum acacia has been added to the Ringer's fluid. Gum acacia at 7 per cent. or gelatin at 6 per cent. seems to conform to the requirements so far as the viscosity and the osmotic pressure are concerned, restoring practically normal conditions in these respects without danger for the animal. A 4 per cent. solution of gum acacia with 0.9 per cent. sodium chlorid gave excellent results in cats, and a 2 per cent. solution has been successfully used in the clinic. Gum acacia already contains calcium and potassium. This is the highest concentration used on man to date of which he knows.

Gum acacia can be easily sterilized by boiling and filtering through cloth; it is superior to gelatin on this account. It is not supposed to contain proteins, and hence anaphylaxis need not be feared. In shock of other origin, the blood may be abnormally concentrated from loss of water and salts. When this is the case, practically normal conditions can be restored by intravenous injection of Ringer's fluid. If the concentration is due to loss of the whole plasma, then the fluid to be injected should correspond in viscosity and colloid osmotic tension to the blood itself. Ringer's solution with 2 or 3 per cent. gum acacia seems to answer the purpose. There might be conditions in which it would be better to use a colloid with less viscosity but higher osmotic pressure, such as dextrin. The effect of hypertonic saline solutions is only temporary as the osmotic balance between the blood and the tissues is so promptly reestablished. Bailiss' experiments on cats with pulmonary edema, following inhalation of asphyxiating gas, confirmed that continuous administration of oxygen is the logical treatment. In the cats, withdrawal of even a small amount of blood reduced the blood pressure so low that death generally followed. Up to a liter of fluid has been found in the lungs in pulmonary edema in gassed soldiers. Intravenous injection of a 2 per cent. solution of gum acacia seems indicated, but as long as fluid is seeping into the lungs, it only adds to the flood unless we can restore the epithelium in the lungs to normal functioning, and oxygen seems the only reliance here. The suffering and dyspnea may persist, however, until the accumulated carbon dioxid has been thrown off by the amplified respiration.

43. **The Nitrogen Balance.**—Malengreau is professor of physiologic chemistry at the University of Louvain, and in the fourteen pages of this work he discusses the actual significance of the nitrogenous minimum.

Bulletin de l'Académie de Médecine, Paris

October 2, LXXVIII, No. 38, pp. 331-359

46 *Notification of Abortions and Miscarriages. P. Bar.—p. 333.
47 The Bread Question. (Le pain actuel.) Capitan.—p. 335.
48 *Syphilis and Heart Disease. E. Gaucher.—p. 349.
49 Extraction of Projectiles from the Heart. R. le Fort.—p. 354.
50 *Traumatic Glycosuria after War Wounds. F. Rathery.—p. 356.
51 Hibernation of Mosquitoes in Southeastern France. (Anopheles en Dauphiné.) L. Léger and G. Mouriquand.—p. 357.

46. **Notification of Miscarriages.**—The Académie adopted a resolution at its meeting October 2, in favor of applying to expulsion of every fetus, whatever the age of its intra-uterine life, the regulations already promulgated in the civil code in regard to notification of stillbirths.

48. **Syphilis and Heart Disease.**—Gaucher reiterates that the field of syphilis is being constantly enlarged, especially the affections of what he calls the quaternary stage of syphilis. The inefficiency of treatment in this stage is no argument against the syphilitic origin; we cannot cure tabes, although tabes is certainly of syphilitic origin. He calls attention in particular here to lesions of the myocardium and especially mitral lesions for which syphilis is responsible. He describes a typical case of mitral insufficiency accompanied by vague intermittent pains, exclusively muscular and intermittent, the knee jerks abolished. The man had been long treated for "rheumatism" and digitalis given for the mitral trouble, no one suspecting the unmistakable syphilitic origin of the trouble notwithstanding a history of syphilis years before and the present signs of abortive tabes.

50. **Glycosuria After War Wounds.**—Rathery found glycosuria in 4.17 per cent. of 1,412 wounded soldiers. The range was from 2 to 20 gm. with exceptional cases up to 35 gm. The duration was only for two or three days, except in two cases in which it was respectively two weeks and several months. But it finally disappeared in all. No instance of actual diabetes developing after a war wound has been encountered.

Bulletins de la Soc. Méd. des Hôpitaux de Paris

July 27, XLI, No. 26, pp. 929-985

52 Polycythemia; Two Cases. (Maladie de Väquez.) Yacoel.—p. 929.
53 Itching Eruption in Men Tending Sick Horses. G. Thibierge.—p. 933.
54 Unimicrobian Typhoid Epidemics. P. Hébert and M. Bloch.—p. 939.
55 Mutability of Bacilli of Typhoid Group Cultivated from the Blood. P. Hébert and M. Bloch.—944. Action on Culture Mediums when Mixed. Id.—p. 946.
56 *Vaccine Therapy of Typhoid. Ranque and Senez.—p. 950.
57 *Differentiation of Diphtheria and Pseudodiphtheria Bacilli. E. G. Avíragnet and Le Soudier.—p. 952.
58 Radiography of Rectocolic Lesions with Dysentery. A. Florand and R. Bensaude.—p. 963.
59 *Spirochetosis. Manine and Cristau.—p. 977.
60 *Attempt at Suicide with Epinephrin. R. Grasset.—p. 981.

56. **Vaccine Therapy in Typhoid.**—Ranque and Senez report that in forty-six cases in which the vaccine treatment was commenced during the first week of the typhoid, the febrile phase lasted on an average only sixteen days. In a total of 120 cases they were impressed with the rarity of complication, absence of relapses, and the simplification of treatment as in a large number of the cases no other measures were required.

57. **Differentiation of Diphtheria Bacilli.**—When circumstances demand exact differentiation, cultures on coagulated serum of the true diphtheria bacilli are dry and white, while those of the Hofmann bacillus are moist and yellow. The diphtheria bacilli are slender, with numerous granulations, the rest of the protoplasm of an even and pale tint, not taking or retaining stains well.

59. **Meningeal Form of Spirochetosis.**—Manine and Cristau report 100 cases with spirochetes in the urine and in some in the spinal fluid also. In 51 cases the liver symptoms predominated, in 10 the pulmonary; in 4 the kidneys; 10 were of a rheumatismal and 10 of a typhoidal type and 11 of the meningeal type. There were 4 deaths in this latter group and one in the typhoidal, but there was no other mortality. In 6 of the 11 meningeal cases the spirochetes were alone and in 5 associated with other germs. There was purpura in 3 in the meningeal group, hematuria in one; extreme opisthotonos for two weeks in one and coma from hypertension in one. Recurrence was frequent; several times the lumbar puncture had to be repeated. Emaciation and anemia were pronounced, and spirochetes were often found in the urine during convalescence. Antimeningococcus serum was injected in three cases while the diagnosis was still dubious, and it unmistakably aggravated the clinical picture. In the other cases lumbar puncture, a fixation abscess and fluid by the rectum, saline with laudanum, and balneotherapy were the reliance.

60. **Attempt at Suicide with Epinephrin.**—The tuberculous young janitor of a pharmacy drank 15 gm. of a 1:1,000 solu-

tion of epinephrin (adrenalin) and five minutes later 20 gm., and then took some other solid drug marked poison, nature unknown. No special symptoms followed until by the end of the second hour the back of the neck became rigid and in two or three hours there were tetaniform contractions, extreme congestion of the face and intense headache. The pulse was about 120, full and regular; amyl nitrite and venesection brought great relief after withdrawal of over 500 gm. of blood. Emetics were also given, with caffein and camphor, and chloral to quiet the agitation. By the next day the only symptoms were a dull headache and pain in the epigastrium. The dry poison taken had evidently not been absorbed as the gastric mucosa must have been exsanguinated. The case teaches that the first swallows of the epinephrin expel the blood from the mucosa of the alimentary tract and hence no further absorption is possible and an emetic will obviate further danger. In this case the epinephrin did not begin to be absorbed for two hours. Grasset draws further the practical conclusion that in administering epinephrin by the mouth it should be given in minute doses, not over 0.25 or 0.5 mg. By this means 2 or 3 mg. swallowed in the course of the twenty-four hours will have a more effectual action than 10 mg. taken at one time. The phenomena from the congestion are also practically negligible with minute doses. In the discussion that followed, Netter remarked that he gives epinephrin by the mouth, from 3 to 5 drops in a teaspoonful of water. By this technic the epinephrin is absorbed before it reaches the stomach. When diluted with considerable water, it is liable to be modified by the gastric secretions. Josué prefers to give epinephrin subcutaneously in infectious diseases with failing suprarenal functioning. He adds 1 c.c. of the 1:1,000 solution to 250 or 500 c.c. of physiologic salt solution. Addition of 0.01 gm. novocain prevents the injection from being painful. The epinephrin is absorbed so slowly when given in this way, that it amounts practically to fractioned dosage, and it can be kept up for several days, as long as the condition requires it.

Correspondenz-Blatt für Schweizer Aerzte, Basel

September 29, XLVII, No. 39, pp. 1249-1328. Jadassohn Festschrift

61 *Eczema. B. Bloch.—p. 1250.
62 Case of Blastomycosis of the Skin. W. Dössekker.—p. 1257.
63 Unusual Localizations of Favus. Du Bois.—p. 1265.
64 Bromid Ulcer on Nose. A Guth.—p. 1268.
65 Nonmalignant Epitheliomas of the Sweat Glands. E. Hedinger.—p. 1270.
66 General Principles for Treatment of Gonorrhea in the Female. P. Jung.—p. 1276.
67 Tuberculids of the Face Resembling Rosacea. F. Lewandowsky.—p. 1280.
68 Necropsy Findings in Case of Chronic Glanders. W. Lutz.—p. 1282.
69 Protecting Pastes for Roentgen Work. G. Miescher.—p. 1286.
70 *Neosalvarsan Exanthem Cured with Epinephrin. O. Nägeli.—p. 1291.
71 Edema of Epidermis with Mammary Cancer. C. Wegelin.—p. 1298.
72 Case of Congenital Absence of Testicles. H. Wildbolz.—p. 1307.
73 Peculiarities of Wassermann Reaction with Nontreated Tertiary Syphilis. M. Winkler.—p. 1314.
74 Percutaneous Absorption. K. G. Zwick.—p. 1319.

61. **Eczema.**—Bloch remarks that we know today little more about eczema than twenty years ago. As hexamethylenamin generates formaldehyd in the tissues when taken internally, Bloch reasoned that this drug might induce blood-borne eczema in the predisposed. A young physician subject to eczema from formaldehyd externally, took 0.5 gm. hexamethylenamin three times a day and in three days parts of the skin were red and itching. By the end of the week symmetrical areas were covered with typical eczema, most pronounced on the upper arms and shoulders. This experimental eczema gradually subsided on suspension of the drug. This case supplies the hitherto lacking proof that eczema can develop from an internal cause. Our task now is to discover in the metabolism and the body juices the substances which are responsible for the development of eczema. The formaldehyd split off from the hexamethylenamin in the case reported must have been in extremely minute amounts.

70. **Neosalvarsan Eruption Warded Off with Epinephrin.**—Nägeli reports the case of a young man who developed patches of erythema on the face, with smarting in the left eye, fifteen minutes after an intravenous injection of 0.15 gm. neosalvarsan. The exanthem was of the type of the antipyrin exanthem. It subsided in twenty minutes but returned each time after the neosalvarsan during the following months until it was found that a preliminary intramuscular injection of 1 c.c. of a 1:1,000 solution of epinephrin warded off the exanthem. Unless the interval betwen the epinephrin and the neosalvarsan had been at least five minutes, the exanthem developed, and the area affected varied inversely with the dose of the epinephrin. Given by the mouth, no effect was apparent. The conjunctiva of the left eye, the cheeks and the brow responded most sensitively to the irritation from the neosalvarsan, as also the areas around pigmented nevi—all very vascular regions. Nägeli also witnessed excellent effects from epinephrin in arresting the disturbances in a severe case of meningeal irritation after neosalvarsan. Milian introduced epinephrin into treatment of the anaphylactoid attacks after salvarsan, resembling the vasodilator disturbances sometimes noted under amyl nitrite. Nägeli further warded off in this way the violent diarrhea to which three patients were subject when taking mercury. After an intramuscular injection of 1 c.c. of the epinephrin solution, the mercury could be given without the otherwise inevitable diarrhea. In other cases the epinephrin proved equally effectual in warding off symptoms of medicinal intolerance. In only one instance did it fail; this patient at the single trial said that his mercury vertigo was worse after the epinephrin. The neosalvarsan exanthem may be due to a pure idiosyncrasy of the skin alone, or the internal organs may share in it, or the latter alone may be affected first and the skin only secondarily from the toxic products generated in them, especially in the liver. As a typical example of the latter, he cites Neisser's arsenophenylglycerin case with a fatal outcome. The first dose had induced only what seemed to be a pure drug exanthem.

Annali d'Igiene, Rome

September, XXVII, No. 9, pp. 549-607

75 The Streptothrix in Disease of the Lung. F. Sanfelice.—p. 549.
76 Pigment-Producing Bacteria. (Biologia dei cromogeni.) M. Pergola.—p. 552.
77 The Haemotrichomonas Gallinarum n. sp. F. Martoglio.—p. 561.

Gazzetta degli Ospedali e delle Cliniche, Milan

September 27, XXXVIII, No. 77, pp. 1041-1048

78 Physiologic Treatment of Infected Wounds. E. Bertarelli.—p. 1041.

September 30, No. 78, pp. 1049-1064

79 *The Organ of Hearing during the War. F. Brunetti.—p. 1049.
80 The Great Question of Proprietary Medicinal Articles. (Specialita medicinali.) E. Villa.—p. 1063.

79. **The Ear During the War.**—Brunetti reviews the various causes liable to injure the organ of hearing during the present warfare. He discusses in particular the injuries from explosions without direct contact, and the detection of simulated or exaggerated deafness in one or both ears. This is particularly difficult when there is or has been hysteric deafness. With this, other stigmata of hysteria must be sought; the reactions to electric tests may be modified. An electric shock alone may cure hysteric deafness. General anesthesia has proved useful in some cases and hypnotism in others, or both together. The areas of hypesthesia in the skin are instructive, as also changes in the visual field and inversion of colors.

Pediatria, Naples

October, XXV, No. 10, pp. 577-640

81 *Color Reaction in Pathologic Cerebrospinal Fluid. L. Chiaravalloti.—p. 577; R. Vaglio.—p. 581.
82 *Organic Nature of and Calcium Metabolism in Chorea. U. Provinciali.—p. 586.
83 Vaccine Therapy for Children. P. Ceppellini.—p. 602. Continuation.

81. **Color Reaction in Cerebrospinal Fluid.**—Chiaravalloti has applied Boveri's color test in thirty cases of various meningeal troubles and normal controls, and expatiates on the simplicity of the technic and the reliability of the bedside findings. [The test was described in The Journal, June 11,

1914, p. 205.] To 1 c.c. of the cerebrospinal fluid is added 1 c.c. of a 1:1,000 solution of potassium permanganate. If the cerebrospinal fluid is normal, the violet tint persists unmodified for some time. With a pathologic fluid, the tint turns yellowish, and the sooner and more intense the phenomenon, the more pathologic the cerebrospinal fluid. He tabulates the findings with parallel tests in his thirty cases, all confirming the other clinical data.

Vaglio confirms these favorable statements and emphasizes in particular the importance of this simple test when there are dubious symptoms and the cerebrospinal fluid is limpid. In thirteen such cases the albumin content of the fluid was only slightly above normal, but this test revealed its pathologic character, confirmed by the course of the cases. He notes further that the reaction does not seem to be modified by the accidental presence of red corpuscles in the fluid. His technic differs slightly from Boveri's as he uses only 1 drop (0.05 gm.) of a decinormal solution of potassium permanganate for 1 c.c. of the fluid, shaking up the test tube.

82. **The Organic Basis of Chorea.**—Provinciali reviews the literature on this topic and describes his personal research undertaken to determine whether symptoms of chorea indicate participation of the pyramidal tracts and cerebellum in the meningo-encephalitis which seems to be responsible for chorea. The manifestations of the disease are so multiple and variable that it is difficult to pass judgment on their source and nature. But with extensive compilations of cases it has become evident that the aggregation of certain symptoms, each insignificant in itself, points more and more conclusively to an organic basis. Cerebellar elements in the clinical picture are hinted in over half the cases. Three cases are described in detail with the findings as to metabolism of calcium compared with a normal child, all on a constant diet. In the child of 7 there was little deviation from the normal type, but in the girl of 14, instead of retention of over 30 gm., only 0.918 gm. was retained and nearly 4 gm. eliminated in urine and feces.

Policlinico, Rome

September 16, XXIV, No. 38, pp. 1149-1176

84 *Treatment of Pyothorax. E. Morelli.—p. 1149.

September 23, No. 39, pp. 1177-1204

85 *Practical Value of Exact Coaptation of Nerve Fibers in Anastomosis of Nerves in the Limbs. C. Barile.—p. 1177.
86 Case of Alleged Occupational Cerebral Hemorrhage. A. Ranelletti.—p. 1182.
87 Median Longitudinal Incision of the Patella. P. Nigrisoli.—p. 1185. M. Fasano.—p. 1186.
88 Dentistry for the Combatants. A. Piperno.—p. 1187.
89 The Otorhinolaryngologic Service in the Army. G. Turtur.—p. 1189.
90 Trachoma in the Army. L. Alajmo.—p. 1191.

84. **Treatment of War Wounds of the Chest.**—Morelli urges the promptest and most complete clearing out of all the blood in the chest, and has devised an apparatus with which the blood is replaced at once by air, thus maintaining the immobilizing compression desired while getting rid of blood, pus, and all secretions. The apparatus for the purpose is a modification of the one devised for thoracocentesis. The illustration shows the two jars with two tubes in the stoppers, connecting tubes, a rubber bulb at one end and a syringe at the other, the aspirating needle connected with the tubing between the jars. The apparatus allows the chest cavity to be rinsed out with a disinfectant if desired. At the beginning of the war, abstention was the rule for chest wounds, but this principle has given way to systematic intervention just as with abdominal wounds. The results are better the earlier it is applied, but mastery of the technic is indispensable.

85. **Coaptation of the Special Fibers in Suturing Peripheral Nerves.**—Barile discusses the practical importance of Stoffel's method of ascertaining the topography of the nerve fibers and suturing like to like. It has been Barile's experience in a number of cases and in experimental research that only the motor fibers of the paralyzed nerve regenerate in the mixed nerves in the limbs after direct electric tests have been applied. On the other hand, time and experience have abundantly confirmed the superiority of his own technic which ensures a large area of coaptated surface, while the nerve fibers, both sensory and motor are left intact. [His method was described in THE JOURNAL, Jan. 11, 1913, p. 170.] He protects the nerve with a piece of the membrane from a hen's egg, boiling first in a gauze bag and then tying it around the nerve, fastening the end of the piece to the connective tissue. This membrane shield lasts long enough before it is absorbed for healing to proceed beyond the stage of adhesions to the nerve. For the anastomosis of the paralyzed nerve, to be grafted on the sound nerve, he cuts the peripheral stump end of the paralyzed nerve in swallow-tail shape, and fits it up into the sound stump prepared to receive it. Each of the swallow-tail tips is fastened in place in the sound nerve with a single stitch. The raw surface between the stumps covers a much larger area than with other technics, and the results, he says, have been most gratifying. The egg membrane is proving a reliable means to protect a nerve after it has been released from a constricting bed of cicatricial tissue.

Revista de la Asociacion Medica Argentina, Buenos Aires

August, XXVII, No. 153, pp. 5-224

91 Circinate Degeneration of the Retina. R. Argañaraz.—p. 5.
92 Syphilitic Pancreatitis. C. B. Udaondo.—p. 19.
93 Sarcoma of Brain of Man of Thirty-Six. M. R. Castex and R. Pradere.—p. 30.
94 *Ileosigmoidostomy for Chronic Constipation. A. Ceballos.—p. 48.
95 History of Hygiene in Argentina. E. R. Coni.—p. 66. Continuation.
96 Putrefaction and Antiputrefaction Bacteria in Milk. E. Fynn.—p. 115.
97 *Pancreatic Diabetes. P. J. Hardoy.—p. 123.
98 Successful Removal of Rhinophyma. J. M. Jorge and A. Speroni.—p. 131.
99 *History of Bubonic Plague. A. M. del Pont.—p. 165. Conclusion.
100 *Pulmonary Tuberculosis in Children. J. C. Navarro.—p. 197.

94. **Shortcircuiting the Lower Intestines in Treatment of Chronic Constipation.**—In the case reported by Ceballos the benefit from ileosigmoidostomy in the young woman was so pronounced that it certainly encourages further trials of this shortcircuiting method in treatment of habitual obstipation. The various other technics for remedying this condition are described with this, and its advantages extolled in cases of constipation for which no cause can be discovered and vagotony or sympathecotony seems to be responsible.

97. **Pancreatic Diabetes.**—Hardoy reports a case in a young man of 21 in whom the pancreatic diabetes had rapidly developed. Certain features of the case suggested an inherited syphilitic taint as responsible for the trouble. The diabetes was of the lean type, of rapid development, with high azoturia and glucosuria, and great prostration. Hardoy recalled that hypertony of the sympathetic system has been incriminated by some in the genesis of glucosuria, but tests in this case failed to reveal any sympathetic hypertony. Certain circumstances suggested that although there was no sympathetic hypertony, practically the same effect was realized by hypotony of the antagonist vagus system. Tests for vagotony gave positive findings, and he tentatively administered pilocarpin to raise the vagotony level to normal. The effect was marked, amply confirming his premises. As the nervous system became habituated to the pilocarpin, the effect grew constantly less. At this point he began vigorous mercurial treatment, and the sugar disappeared promptly from the urine. To confirm these conclusions anew, he brought on the glucosuria again by a change of diet, and banished it promptly anew with pilocarpin. In conclusion he reiterates that syphilis should always be sought in diabetics. He adds that severe diabetes of the pancreatic type, in the young, is liable to improve remarkably under treatment, which might include pilocarpin.

99. **Bubonic Plague.**—This instalment brings to a close Del Pont's long historical sketch of bubonic plague through the ages. In Argentina it seems there were 1,635 cases from 1899 to 1913, inclusive. It appeared also in Brazil for the first time in 1899. Rosario in Argentina is still an important focus, 40 cases in and around it being known in 1914. It had the first case of plague in the country, imported from Paraguay whence it spread to Buenos Aires. But the Salta focus became infected, by way of Chili, from the endemic focus at San Francisco. "This," he adds, "is the city that with its commerce scattered the plague along the entire Pacific Coast of America." The data show, he says, that in Argentina the

disease has not been spread by migration of rats but exclusively by the railroads. The disease always appeared first in the grain warehouses, in warehouses where there are goods in sacks and, predominantly, in the vicinity of railroad stations.

Del Pont's study of the plague through 4,000 years shows that it occurs in waves. It spreads rapidly around the world, following the routes of commerce, and then seems to die out simultaneously everywhere, without known cause. The decline cannot be from attenuation of the death-rate as the mortality in the latter part of the epidemic is as high as at first. It cannot be explained either by acquired immunity, as this would require having passed through a mild attack. When the epidemics declined, scattered endemic foci were always left, as at present in Buenos Aires and Rosario, Rio, Para, Pernambuco and Bahia in eastern South America. But such foci usually die out before long all except a very few. These places shelter the virus until it starts another pandemic. In previous ages bubonic plague killed human beings and domestic and wild animals alike, but of recent years it seems to be pathogenic only for man and certain rodents; at least the latter are the only ones that have the disease naturally. But the virulence of the disease has not been modified. Men die of it now just as promptly as in the days of Thucydides or Procopius.

The present epoch is now characterized by a disquieting persistence of the disease in the scattered endemic foci around the world. Many places that had never had a case ten years ago, have now become actual endemic foci on a small scale. The present epidemic seems to be favored by unhygienic conditions, as in the epidemics of previous ages. The prophylactic measures at present in vogue are effectual only in certain circumstances, and they succeed in extinguishing the disease only in certain localities. In the semibarbarous districts they do no good whatever. On the other hand, the most civilized communities escape with relative facility without much in the line of special measures. As Aubert said in 1840, "the plague must be combated not with lazarets but with civilization." The classic foci hitherto have been parts of southern and northeastern Asia, Mesopotamia, Arabia, the Caucasus mountains, and Kissiba in Africa between the lakes Albert and Victoria, but Del Pont's summary shows now many other equally dangerous foci.

100. **Special Forms of Pulmonary Tuberculosis in Children.**—Navarro describes six cases of chronic pulmonary tuberculosis in children in whom extensive lesions in the lungs did not appreciably debilitate, all presenting the aspect of health. One of the children did not even have a cough. The only constant symptoms were the lack of appetite and the tendency to lassitude. They were usually pale, but one had quite a ruddy complexion. All except one were annoyed by frequent coughing without dyspnea, cyanosis or subjective symptoms. Two of the children were 4 and 5, the others, between 8 and 14. In two, the right or left apex was the seat of the lesion; in the others, the base of the lung.

Semana Medica, Buenos Aires

August 16, XXIV, No. 33, pp. 177-202

101 Vaccine Therapy of Diphtheria. (Tratamiento de la difteria por la haptinogenina.) J. Mendez and L. A. Garcia.—p. 177; (El haptinogeno Neumo complemento del tratamiento antidifterico.) M. Ochoa.—p. 204.

102 Radium Treatment of Cancer. E. Jonquieres.—p. 202.

Siglo Medico, Madrid

September 15, LXIV, No. 3327, pp. 685-704

103 Pathogenesis of Suicide in Dementia Praecox. G. R. Lafora.—p. 686.

104 Albumin Reaction in the Sputum in Diagnosis of Pulmonary Tuberculosis. A. J. T. Lopez.—p. 689.

105 Hydrogen Dioxid—Lanolin Salve. Sicilia.—p. 692.

106 The Aims of Medical Inspection of Schools. M. de T. Latour.—p. 692.

107 The Blood Findings in Employes of Gas Works. J. de la Rivaherrera.—p. 693.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

August 18, II, No. 7, pp. 533-612

108 *Do Animals Feel Pain? (Voor en tegen proeven op levende dieren. II.) G. van Rijnberk.—p. 533.

109 Generalized Mycosis Caused by Monilia Alcalophilis. E. E. A. M. de Negri and J. B. Waller.—p. 537.

110 Burow's Solution of Aluminum Acetate in Treatment of Wounds. N. Schoorl.—p. 548.

111 Etiology of Scleroderma. J. Koopman.—p. 553.

112 Psychanalysis. W. L. L. Carol.—p. 561.

113 Orbital Abscess with Disease of Lacrimal Sac. G. ten Doesschate.—p. 564.

108. **Is There Sensation of Pain in Animals?**—Van Rijnberk is professor of physiology at the University of Amsterdam. He here remarks that theoretically it is impossible, and practically it is often difficult, to determine whether a human being is suffering pain, and to determine whether an animal can suffer or does suffer pain is even more difficult. Have animals (all animals? one given animal?) mind, reason, consciousness? Have they (all? a given one?) perceptions comparable to those of man? One person regards all animals as merely automatons; another believes that a horse can do examples in arithmetic.

But so far as determination of whether an animal is suffering "pain" or not is concerned, we are exclusively restricted in our judgment to vague signs, such as sounds, movements, and the like as testifying to the presence of pain. We have to bear in mind here that nothing, literally nothing can guarantee to us that in a given case any manifestation which we are accustomed to consider as an expression of pain—nothing can guarantee to us that in reality this manifestation is accompanied by conscious perception.

The extent to which one can be misled by assuming that the apparent manifestations of pain are reliable signs of such, is rendered plain by Norman's angleworm experiments which any one can repeat with an angleworm, a pair of scissors and a little loose dirt. Who is there that has not seen an angleworm curling up and twisting when part has been stepped on or been chopped by a spade? Norman subjected these "pain contortions" to closer analysis, and found that when an angleworm is cut in two with scissors, the tail end writhes and twists as if in agony, but the head end, the supposed seat of the perception of pain, creeps quietly onward. By cutting each half again in two, the part toward the tail begins to twist and writhe while the part toward the head lies quite still or creeps quietly on. Even the front end of the previously twisting tail part, becomes quiet when it is severed anew, while the rear portion continues twisting. Whatever the explanation of these facts can be, it is most certainly evident that the writhing of an angleworm cannot be regarded as an expression of "pain," because that very end of the body where the higher centers are supposed to be located does not share in the manifestations. Similar but not quite identical phenomena are observed with eels and lizards. If the tail of a lizard is suddenly chopped off, the tail begins to jump about, but the body of the lizard soon lies quiet. Here too we see the apparent expressions of pain in the part of the body where we would least expect it. Such facts show how cautious one must be in the interpretation of the supposed objective expressions of subjective sensations in animals.

Even assuming for the sake of argument that all animals possess varying degrees of conscious perception, this does not answer the question as to whether they feel pain. There are numerous grounds for assuming that, at least in man, pain is a function of his highest psychic powers. It seems to be a general rule that the more intense the response in the form of pain to a given injury, the more highly developed the nervous system responsible for the sensation. The civilized man feels pain where the savage would not notice the irritation. In imbeciles and idiots the sensation of pain seems to be rather vague. Applying these data to the whole animal kingdom, the sensation of pain can be regarded as a psychic supplement to the unconscious reflexes, which has been regularly developed in the animal series in response to injurious influences. Each irritation starts in the nervous system a series of more or less effectual reflexes, movements for flight or defense, or secretion of fluids, as of saliva in the mouth, tears to protect the eyeball, etc. For the behavior of an organ or the whole animal in these circumstances it is immaterial whether these useful reactions are associated or not with a conscious sensation of pain.

Supposing that an animal sticks his paw in a flame. The reflex mechanism from his spinal cord draws the paw back out of the flame, and it is immaterial for the paw whether the animal felt pain thereby or not. But for the further existence of the animal it is of the greatest importance whether he can profit by this experience or not. The next time, warned by the sight of the flame, he may keep cautiously out of the reach of the bite of the flame monster. But learning this lesson presupposes the presence of a number of psychic properties and power of reasoning, recognition, memory, association and deduction. In the absence of all these mental processes the sensation of pain would be of no possible use and quite superfluous. There is thus great probability that the (subjective) perception of pain is a later acquirement than the manifest (objective) reaction to injurious stimuli. It forms a sort of psychic by-product, a by-phenomenon of the automatic reflex. And, as a psychic phenomenon, it is closely connected with the development of the mind.

Hospitalstidende, Copenhagen

August 22, LX, No. 34, pp. 813-836

114 *Residual Nitrogen in the Blood with Surgical Kidney Disease. A. Sabroe.—p. 813.

114. **Residual Nitrogen in the Blood with Surgical Kidney Disease.**—Sabroe remarks that none of the functional tests for the kidneys, with stains, experimental polyuria or determination of the freezing point, have proved unfailingly reliable. They all overlook the vital point that the functioning of the kidneys at a given moment is not necessarily the criterion for their average functional performance. The most reliable information as to the functional capacity of the kidneys seems to be afforded by the urea content of the urine taken from each ureter separately. Positive findings are strong evidence in favor of operability, but the reverse is by no means the case. With surgical tuberculosis, there is always a possibility that the part of the kidney which it is proposed to remove may in reality be the very tissue responsible for the approximately normal functioning. Determination of the residual nitrogen in the blood as a test for the functional capacity of the kidneys, Sabroe declares, is of no clinical value in estimation of surgical kidney affections, as the rise in the residual nitrogen content does not occur until so late in the disease that the clinical findings alone tell the story by that time. This conclusion is based on study of eight patients with tuberculous lesions in the urinary passages, ten with nontuberculous lesions given operative treatment, and eight mixed cases. These twenty-six cases are tabulated with full details, filling thirteen pages, all confirming the disappointing verdict.

Norsk Magazin for Lægevidenskaben, Christiania

April, LXXVIII, No. 4, pp. 393-504

115 *Chorea. II. C. Schiøtz.—p. 393.
116 Nutritional Disturbances in Infants. C. Johannessen.—p. 427.
117 The Normal Peristalsis of the Colon. J. Nicolaysen.—p. 447.
118 Pure Word Blindness. J. Henrichs.—p. 452.
119 *Carbon Monoxid Poisoning in Motor Boats. F. Harbitz.—p. 462.

115. **Chorea.**—Schiøtz concludes from his experience with 211 cases of chorea that it is a neurosis which develops in the predisposed mainly between the eighth and twelfth years in boys, and two or three times as often in girls; usually between the sixth and fourteenth years in girls. There were representatives of all ages under 23 in the total 376 cases tabulated, which includes 165 Danish cases. The inciting causes may be of infectious or toxic nature or emotional stress, but the predisposed age is the period of most active growth. The years closest to puberty are less affected. True chorea has never been observed in animals. The tabulation shows further that the largest number of cases develop in November and the smallest in July. Analysis of 28,754 cases of acute articular rheumatism in Norway, 1907-1913, shows that it affects the sexes about alike. Over 20 per cent. of the cases were in children under 15, consequently we have no ground for calling chorea "childhood's acute articular rheumatism" as some do. Chorea is most prevalent in towns, and among bright, ambitious schoolchildren just at the years when the greatest proportionate demands are being made on the brain and nervous system, and the metabolic processes are particularly lively.

Treatment is like that for neuroses in general, tranquilizing measures with nourishing food and hygiene. The unmistakable benefit from arsenic may be on account of its checking the metabolic processes in general, so that it acts as a sedative. In the pregnant, besides the intensified metabolic processes, there may be an eventual intoxication, conditions thus comparable to the period of most active growth in children. A compilation of 217 cases of pregnancy chorea shows that in 140 of the women it developed in the first half of the pregnancy. In a further compilation of 224 cases of pregnancy chorea, 106, nearly half of the women, were under 21 and 102 between 21 and 26, leaving only sixteen older than this in the total 224 cases. Youth in the pregnant women is thus a predisposing factor to pregnancy chorea. Possibly roentgenoscopy might show in cases of pregnancy chorea that some of the epiphyses have not yet become united to the shafts of the bones, showing that the period of active growth still persists. Infections, autointoxications and emotional stress may be the source of the reflected irritation in the pregnant as well as in children.

119. **Carbon Monoxid Poisoning in Motor Boats.**—Harbitz describes several cases of poisoning from leakage of exhaust gas into the small cabin of a motor boat. In one case a party of four young persons went out on a pleasure trip. Two went into the small cabin and shut the door. In half an hour the others entering found the young man dead and the girl unconscious. The air was close in the room but there was no special odor, no smell of gasoline. The young man was a healthy athlete. He was found stretched out with closed eyes; there was no foam at the mouth and he had not vomited, but had voided excreta. Nothing was found to indicate suicide, and the blood confirmed the assumption of carbon monoxid poisoning. The motor was defective and leaky; the exhaust gas contained unusual amounts of carbon monoxid and the arrangements were such that the exhaust gas might have accumulated in the cabin. Women seem to be more resistant to carbon monoxid than men, and the young woman in this case finally recovered. In a series of 360 cases of coal gas poisoning at Paris, man and wife were affected together in nineteen, and the three survivors were all women. Women in an unconscious condition can hold out longer, as their need for oxygen is less.

Four workmen later had a similar accident. All were fasting, and sought shelter from the cold in the small cabin of the motor boat, 2 by 2 by 1.5 meters in size. All were found unconscious, ice-cold, but not cyanotic; respiration was weak and shallow. Their arms were stiff and pressed tight against the body and the jaws closed tight. Some had vomited and defecated, and the urine flowed spontaneously. Under artificial respiration and massage, heat and stimulants, they were revived in the course of a few hours. Two did not regain consciousness until the next morning. All had headache and nausea and were unable to go to work for a few days, but finally all recuperated. In these motor boats a seat was built in entirely around the edge of the boat and formed a closed space. Leakage of exhaust gas into this space thus permitted it to gain entrance into the cabin. Harbitz calls attention in particular to the stiffness of the body in a seated position in all the four men. It seemed to be an actual rigor mortis in the living body. In the fatal cases of carbon monoxid poisoning, the rigor is generally exceptionally intense. Hultkvist recently noticed signs of carbon monoxid poisoning in himself while waiting in his garage for his automobile engine to heat up. A rat exposed close to the exhaust gas died. He warns further that the dangerous gases from a garage may rise. Harbitz describes further the case of Dr. Kildal, 45 years old, who spent the night on his motor boat. It was a covered boat, with a gasoline engine and a portable heater. The latter was lighted for one hour and later for half an hour. In the morning the engineer felt headache and nausea and found the doctor, stiff and cold beside him, the blood showing carbon monoxid poisoning. Harbitz regards the carbon monoxid in the exhaust gas as responsible for these accidents.

The Journal of the
American Medical Association
Published Under the Auspices of the Board of Trustees

VOL. LXIX, No. 21 CHICAGO, ILLINOIS NOVEMBER 24, 1917

COMPARATIVE RESULTS OF VARIOUS FUNCTIONAL KIDNEY TESTS

BASED ON A SERIES OF CASES *

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So long as the chief cause of death following operations on the genito-urinary tract continues to be uremia, just so long will the concern of the up-to-date conscientious surgeon be the determination of the functional efficiency of the kidneys. Disregard for this important matter too often furnishes the mark of distinction between the skilled urologist and the general surgeon, and explains the relatively high mortality rate for urologic operations in the experience of the general surgeon. Investigation recently[1] revealed the alarming statistics that in twenty-six hospitals in this and neighboring states the mortality for nephrectomy and prostatectomy at the hands of general surgeons was 25.9 and 22.5 per cent., respectively, as contrasted with 7.7 and 4.33 per cent. in seven times the number of operations by eight of the world's most noted urologists. In other words, this means that in a large minority of such operations from 75 to 80 per cent. of deaths are avoidable.

Unfortunately, the urologic world has been almost submerged by a plethora of functional kidney tests — good, bad and indifferent. These are divisible into those of elimination and those of retention, and comprise the forty-five given in Table 1, in the order of their appearance.

It is conceded that the most accurate method of determining the kidney function is a quantitative metabolic study. At the same time it is fully realized that in the vast majority of instances such a procedure is not only impracticable, but not infrequently fallible. Thus the profession has turned to, employed, and discarded one after another of the long list of functional tests; nor is the disputed question yet settled as to which is the best.

In the past it has been the practice of urologists in various parts of the world to employ one or more tests in their particular groups of cases, drawing conclusions as to which was the best. Synchronously or subsequently in another quarter of the globe another investigator has reported his researches, relying on one or more other tests in an entirely different group of cases, but nevertheless asserting the discovery of the most reliable test, irrespective of the fact that he may have had little or no experience with the beloved idol of his professional brother. It may be true that there are several tests equally good. On the other hand, the fact may be that one of the host is truly superior to all the rest, not only as to reliability, but also as to practicability.

It occurred to us that more accurate information relative to the comparative value of the functional tests might be obtained by subjecting each of a group of patients to all of a series of some of the more reliable, and commonly employed, kidney tests. Accordingly, for the past two years, when not inadvisable, we have carried out painstakingly and impartially the following ten functional kidney tests: indigocarmin, phenolsulphonephthalein, the total nonprotein nitrogen of the blood, the urea nitrogen of the blood and urine, the urine urea by the sodium hypobromite method (Doremus-Hinds ureometer), Ambard's ureosecretory constant of the blood and urine, the creatinin of the blood, and the cryoscopy of the blood and urine.

TABLE 1.—FUNCTIONAL KIDNEY TESTS

TESTS OF ELIMINATION

Total quantity of urine.
Odor after asparagus (1820)
Odor after turpentine (1820)
Opium (1857)
Mercury (1865)
Iodid of ethyl (1867)
Potassium iodid (1867)
Potassium bromid (1867)
Indigo (1867)
Anilin (1867)
Turmeric (1867)
Alkaline carbonates (1867)
Fuchsin (1877)
Quinin sulphate (1877)
Salicylic acid (1877)
Benzoic (hippuric) acid (1879)
Methylene blue (1897)
Rosanilin (1898)
Phlorizin (1899)
Indigocarmin (1903)
Experimental polyuria (1904)
Diastase (1908)
Phenolsulphonephthalein (1910)
Pepsin (1912)
Uranin (sodium fluorescein) (1913)
Lactose (1913)
Trypanblue (1914)

TESTS OF RETENTION

Total urinary solids
Normal urinary salts (alkaline chlorids, phosphates and sulphates, and alkaline earths) (excretion)
Urine urea (excretion) (1872)
Total nitrogen (1883)
Cryoscopy (blood, urine) hemorenal index (1898)
Electrical conductivity (blood, urine) hemorenal index (1900-1904)
Wright's excretory quotient (1904)
Chlorids (blood, urine) hemorenal index (1907)
Urea nitrogen (blood, urine) (1908)
Ambard's constant (ureosecretory index) (1910)
Urinary toxicity (1910)
Acidosis (1910)
Blood nonprotein nitrogen (1912)
Creatinin (1914)
Creatin (1914)
Uric acid (1914)
Indican (1914)
Phosphates (1916)

These ten tests have been selected for study from the extensive list, chiefly because several of them are routine methods and are believed to be the most reliable and practical. A number of others, namely, phlorizin, potassium iodid and lactose, experimental

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* Read before the Section on Genito-Urinary Diseases at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints. A copy of the latter will be sent by the author on receipt of a stamped addressed envelope.

[1] Thomas, B. A.: The Significance of Specialism in Surgery with Reference Especially to Genito-Urinary Surgery, Pennsylvania Med. Jour., 1916, 20, 101.

polyuria, acidosis and chlorids, might have been included, but would probably not have proved more meritorious than those utilized, and would merely have imposed an additional inexcusable ordeal for the patients. Phlorizin has few adherents today. Whether or not the test is too sensitive, grave fallacies or inconsistencies have arisen in the study of both normal and diseased kidneys, rendering the test undependable in the experience of most investigators. Potassium iodid and lactose in conjunction with salt and water possess mainly a clinical interest, and have been utilized for the differentiation of tubular and glomerular nephritis. This is a matter which interests internists rather than surgeons. Moreover, the method lacks universal confirmation. The experimental polyuria test of Albarran has much to recommend it, but is open to the following objections: (1) difficulties with ureteral catheters and accurate collections of the respective urines; (2) unilateral reflex stimulation or inhibition of function, incident to catheterization; (3) the fact that two or three hours is an unjustifiably long time to permit the ureteral catheter to remain in situ; (4) the inability of some patients to drink the required amount of water; (5) occasionally, the failure to produce polyuria by increased water intake, and (6) in slight lesions of the kidneys the inability to detect differences between the two sides. Acidosis and the phosphate and chlorid content of the blood are estimations promissory of much value in nephritis, but as yet possess only clinical and research importance.

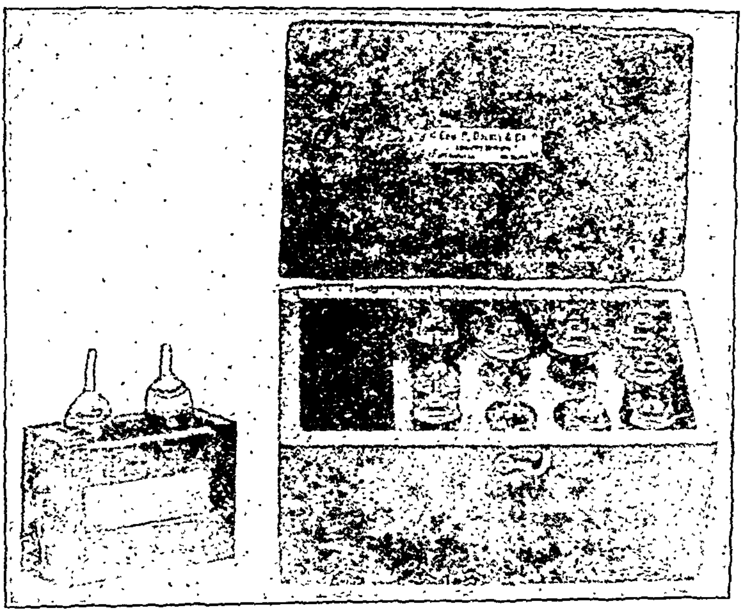

Fig. 1.—Colorimeter for the quantitative determination of indigocarmin.

TECHNIC EMPLOYED IN TESTS

Indigocarmin.—In the cases furnishing the text of this report, in order to parallel the method of employment of phenolsulphonephthalein, indigocarmin was administered intramuscularly,[2] although for years in many cases we have injected the dye intravenously and now prefer this method for chromo-ureteroscopy in the unilateral determination of kidney function. The quantitative determinations were made for three hourly intervals, the Duboscq[3] or a recently improvised less expensive colorimeter (Fig. 1) being utilized. Due consideration was accorded the onset of elimination and the quantitative output, although greatest reliance was placed on the index of elimination,[4] that is, the ratio of output for the first and third hours, respectively, taking into consideration the onset and alternative interval quantitative output, and hence the stability of kidney function.

Phenolsulphonephthalein.—The application of this test varied from that stipulated by Rowntree and Geraghty[5] in the following respects: The quantitative output was computed for three instead of two hours, and the elimination for the first hour was measured from the time the drug was administered, not from the time it first appeared. It has frequently happened that twenty minutes, a half hour, or even an hour or more, has elapsed following the injection of phenolsulphonephthalein before its appearance in the urine. It has therefore seemed more rational, scientific and accurate to regard the quantitative output for the first hour from the time the drug was administered; otherwise the quantity commonly regarded as eliminated for the first hour comprises that for the hour after elimination begins, plus the time required for it to appear. The latter is a wide variable in renal disease, and, we believe, should not be disregarded.

Determination of Nonprotein Nitrogen of the Blood.—The method employed for the estimation of the nonprotein nitrogen of the blood is in general that followed by Folin and Denis.[6]

> Ten c.c. of blood are withdrawn from a vein and placed in a 100 c.c. volumetric flask containing about 5 drops of a 20 per cent. solution of potassium oxalate. The flask is immediately shaken and filled up to the 100 c.c. mark with methyl alcohol — acetone free. The flask is vigorously shaken and allowed to stand, tightly stoppered, for at least two hours. The fluid is then separated from the coagulum by filtering. From 2 to 3 drops of a saturated alcoholic solution of zinc chlorid are now added to the filtrate, and after a few minutes the mixture is again filtered.
>
> Ten c.c. of the alcoholic filtrate, which are the equivalent of 1 c.c. of blood, are pipetted into each of two thin glass test tubes, about 200 mm. in length and 25 mm. in diameter. Four-tenths gm. of potassium sulphate, 1 drop of a 10 per cent. copper sulphate solution and 1 c.c. of concentrated sulphuric acid—all reagents to be of highest purity—are added to each tube in the foregoing order. The test tubes are then placed in convenient holders and heated over small microburner gas flames until the mixture becomes completely colorless. As soon as the test tubes have become cool, 8 c.c. of distilled water are added.

Aeration of the ammonia is carried out in the following way:

> Into each of two 500 c.c. Erlenmeyer flasks are placed 200 c.c. of distilled water., 10 c.c. of fiftieth-normal sulphuric acid and a few drops of the indicator—Congo red. Each flask is now closed with a two-hole stopper having a Folin tube passing nearly to the bottom of the flask.
>
> The apparatus is now adjusted (Fig. 2) in the following order: Woulfe bottle; Flask C, Test Tube D, containing the

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[2] Thomas, B. A.: Ueber die Chromoureteroskopie in der funktionellen Nierendiagnostik, Ztschr. f. Urol., 1911, 5, 259; The Value of Chromo-Ureteroscopy in Functional Kidney Diagnosis, Surg., Gynec. and Obst., April, 1911; The Results of Two Hundred Chromo-Ureteroscopies Employing Indigocarmin as a Functional Kidney Test, The Journal A. M. A., Jan. 18, 1913, pp. 185-188.

[3] Thomas, B. A.: The Quantitative Determination of Functional Renal Sufficiency by the Duboscq Colorimeter: Indigo versus Phenolsulphonephthalein, Am. Jour. Med. Sc., September, 1911.

[4] Thomas, B. A.: The Rôle of Functional Kidney Tests and Preoperative and Postoperative Treatment in the Reduction of Prostatectomy Mortality, The Journal A. M. A., Nov. 28, 1914, pp. 1909-1915.

[5] Rowntree and Geraghty: An Experimental and Clinical Study of the Functional Activity of the Kidneys by Means of Phenolsulphonephthalein, Jour. Pharmacol. and Exper. Therap., 1910, 1, No. 6.

[6] Folin and Denis: Jour. Biol. Chem., 1912, 11, 527.

digested mixture, and the acid wash bottle. Between Test Tube D and the acid wash bottle, Flask C′ and Test Tube D′ are placed as a control. A sufficient quantity of a saturated solution of sodium hydroxid is added to Test Tubes D and D′ until a bluish color appears.

By means of suction, air is made to pass through the apparatus slowly at first and then rapidly for from twenty to twenty-five minutes. The apparatus is then disconnected and the contents of Flasks C and C′ are titrated against fiftieth-normal sodium hydroxid and the estimation of nonprotein nitrogen is made. One c.c. of fiftieth-normal sulphuric acid is neutralized by 0.00028 gm. of nonprotein nitrogen.

Determination of Urea in Urine.—For rapid determination of the amount of urea in the urine, we have made use of the hypobromite method.

The apparatus, Doremus' ureometer, consists of a graduated fermentation tube mounted on a glass foot and graduated arm with glass stopcock for the introduction of urine.

First, urine should be introduced into the graduated arm and the glass stopcock closed, the opening being full of urine. The graduated fermentation tube should then be rinsed free from all traces of urine and the graduated arm filled with urine to the 0 mark. The graduated fermentation tube should now be filled with hypobromite solution.[7] By means of the glass stopcock, 1 c.c. of urine is permitted to flow slowly into the graduated fermentation tube. The urine will rise through the hypobromite, and the urea will instantly decompose, giving off nitrogen gas. The ureometer indicates either the milligrams of urea in 1 c.c. of urine or the grams of urea per fluidounce of urine.

A twenty-four hour specimen should be collected and mixed, and a specimen of this taken for the test if accurate data are to be had.

Determination of Urea Nitrogen of Blood and Urine.—We use the following method:

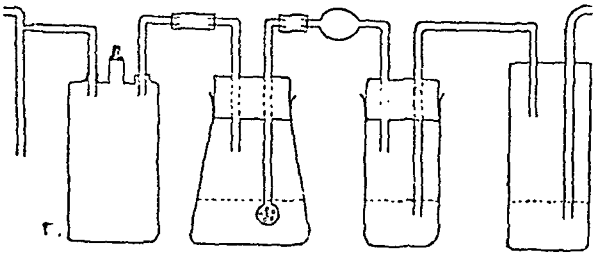

Fig. 2.—Arrangement of apparatus for aeration in nitrogen determination.

Three c.c. of blood are introduced into each of two test tubes of dimensions similar to those employed for the nonprotein nitrogen determination. From 2 to 3 drops of 20 per cent. solution of potassium oxalate are added. The mixture is well shaken and 3 c.c. (of a 0.6 per cent. solution) of acid potassium phosphite, one urease tablet,[8] which has been previously pulverized, and about 5 to 10 drops of amylic alcohol, the latter to prevent foaming in the aeration process, and then 5 c.c. of distilled water are added. The same apparatus as employed for the nonprotein nitrogen is used, and with the test tubes immersed to the level of the contained mixture, in beakers of water at 50 C., aeration is carried out for from two to three minutes. At the end of this time from 3 to 5 gm. of potassium carbonate are added to each test tube, and aeration is continued for fifteen minutes. In estimating urea nitrogen of the urine, 0.5 c.c. of urine should be used and the same technic employed as described above.

The final estimation is made by titrating the contents of the flask against fiftieth-normal sodium hydroxid, and the computation is made in the same way as for nonprotein nitrogen.

Creatinin of the Blood.—In the estimation of the creatinin of the blood we have used the Duboscq colorimeter and the following application of Folin's method:

To 6 c.c. of blood in a graduated 50 c.c. centrifuge tube, 5 drops of a 20 per cent. solution of potassium oxalate and enough distilled water to bring the mixture up to the 30 c.c. mark are added. The mixture is then stirred until the red blood corpuscles have become laked. Then 1 gm. of picric acid is added and the mixture again stirred at intervals with a glass rod until it becomes a light yellow. The tube is then centrifuged and the supernatant fluid filtered. To 10 c.c. of the filtrate is added 0.5 c.c. of 10 per cent. sodium hydroxid, and a similar amount of 10 per cent. sodium hydroxid is added to 1. c.c. of standard creatinin in saturated picric acid. The reading is then made by means of the Duboscq colorimeter exactly at the end of ten minutes after the addition of the sodium hydroxid.

The creatinin standard solution is made up after the method of Benedict:[9] fifteen mg. of creatinin are dissolved in 15 c.c. of tenth-normal hydrochloric acid, and 1 c.c. of the mixture is diluted up to the 100 c.c. mark with saturated picric acid solution. Ten c.c. contain 1.5 mg. of creatinin.

Estimation of the Ambard Quotient.—Ambard's quotient, or the ureosecretory constant, resulted from a series of studies[10] of the laws governing the concentration of urea in urine.

Ambard's First Law: By experimentation Ambard found[11] that if the kidney excreted urine which maintained a constant urea concentration, its urea output during any given time varies as the square of the concentration of urea in the blood of any given person.

C = grams of urea per liter of urine.
Ur = grams of urea per liter of blood.
V = amount of urine excreted in twenty-four hours.
Vxc = urea output in twenty-four hours.
Constant $= \frac{Ur}{\sqrt{c}}$ provided the urine has a constant concentration.

Ambard's Second Law: By further study[12] Ambard found that variations in the concentration of the urea in the urine altered the relation between the rate of urea excretion and the urea concentration of the blood. After many examinations Ambard concluded (second law) that when a urine of variable concentration is excreted, if the blood urea remains at a constant concentration, the urea output for any given time will be inversely proportional to the square root of the urea concentration in the urine. Twenty-five gm. of urea per liter D_{25} was adopted as the standard concentration of urea in urine. D_{25} equals $\frac{D \times \sqrt{c}}{5}$.

Ambard's third law states that when the urea concentration of the blood and of the urine varies in direct proportion to the square of the urea concentration in the blood and in inverse proportion to the square root of the urea concentration in the urine, the ureosecretory constant $= \frac{Ur}{\frac{D \times \sqrt{c}}{5}}$ or $\frac{Ur}{D}$.

Estimation of Ambard's constant in a case of prostatic hypertrophy[25]:

Amount of urine collected for one hour = 60 c.c.; $V = 60 \times 24 = 1{,}440$ c.c. — urea per centimeter in urine = 20 per liter. Urea output in urine = 1,440 × 20 per cent. = 28.80 (D).

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[7] The hypobromite is prepared as follows: One hundred gm. of sodium hydroxid are dissolved in 250 c.c. of distilled water. To 20 c.c. of sodium hydroxid solution, in a 50 c.c. graduated cylinder, 2 c.c. of bromid are added; this is shaken and enough distilled water is added to bring the mixture up to the 44 c.c. mark. This makes the hypobromite solution, and as it does not keep well it should be made up fresh each day.

[8] The soy bean urease tablets are put up in this convenient form by the Arlington Chemical Company, Yonkers, N. Y. Each tablet contains sufficient enzyme for a single test.

[9] Benedict: Jour. Biol. Chem., 1914, **18**, 183.

[10] Ambard: Étude sur les concentrations urinaires, Arch. internat. de physiol., 1909, **8**, 437.

[11] Ambard: Rapports entre le taux de l'urée dans le sang et l'élimination de l'urée dans l'urine, Comp. rend. Soc. de biol., 1910, **69**, 411.

[12] Ambard: Rapports de la quantité et du taux de l'urée dans l'urine, la concentration de l'urée du sang étant constante, Compt. rend. Soc. de biol., 1910, **69**, 506.

This amount corrected for concentration of 25 per cent. = $28.80 \times \frac{\sqrt{20}}{5} = 28.80 \times 0.88 = 25.34$—.

Urea estimation of the blood = 0.514 gm. per liter.

$$\text{Ambard's constant} = \frac{Ur}{\sqrt{D_{25}}} = \frac{0.514}{\sqrt{25.34}} = \frac{0.514}{5} = 0.1.$$

The normal constant has been found to vary between 0.06 and 0.08.

Cryoscopy.—The Beckmann cryoscope, necessitating the preliminary determination each time of the lowering of the freezing-point of distilled water, was employed. The details of cryoscopy need not be given, since in our experience the δ blood and the Δ of the urine have been of all the tests the least reliable. Aside from comparative tests on the urines from each kidney separately, cryoscopy, as a test of kidney efficiency, is of minimal value.

COMPARATIVE RESULTS OF TESTS

In order better to display the comparative results of these various functional kidney tests, they have been tabulated in a number of exemplary cases, normal and pathologic, the latter including mostly retention of urine, due to prostatic or vesical orifice obstruction, or to urethral stricture, with a few nephritics and other renal diseases, mainly surgical.

In Table 2, we enumerate a few absolutely normal ambulatory patients who have been subjected to two or more of the functional tests. The number of cases is small, but we believe sufficient to permit judgment as to the results for the functional tests studied. For indigocarmin this was found to be from five to twelve minutes[13] for onset of elimination; from 18.45 to 24.5 per cent. for quantitative output for three hours, with an index of elimination of from 2.9 to 6.7. For phenolsulphonephthalein the respective figures were nine to fourteen minutes, 38.19 to 77.99 per cent. and 1.6 to 16.1. It will be observed that phenolsulphonephthalein was not eliminated as early as indigo, that there was greater variability in quantitative output and extreme variability as to index of elimination, the substance apparently not lending itself well to this method of determination, at least for hourly periods. In this connection the recent animal experimental work of Kendall[14] is of paramount importance. He finds that the phenolsulphonephthalein output is, fundamentally, the ratio between its rate of reduction and the supply of oxygen in the body, and in any given case is dependent on so many factors that its localization effects in any one organ are impossible. If this work is substantial clinically, it will explain many of the singular results heretofore obtained from the employment of this drug as a functional kidney test.

In normal persons the total noncoagulable nitrogen of the blood varied from 25 to 31 mg., and the blood urea nitrogen from 10 to 15 mg. per hundred c.c. The urine urea nitrogen, on the other hand, varied from 58 to 210 mg. per hundred c.c., and in our experience presented nothing of value over the Doremus ureometer method with sodium hypobromite, in which the findings were from 9 to 17 mg. per cubic centimeter. Correspondingly, the ureosecretory index of Ambard showed results of from 0.03 to 0.09. It will be observed that of the retention tests employed, the noncoagulable nitrogen and the urea nitrogen of the blood showed the greatest uniformity of results and ran a close parallelism. Our results, therefore, do not support the contention of Smith[15] that Ambard's constant or McLean's modification is a more reliable index as to renal involvement and prognosis than is the determination of the blood urea nitrogen alone. It has been maintained by Addis and Watanabe[16] that certain functional tests—as phenolsulphonephthalein—fail to reveal the latent deficiencies in the kidney function, whereas experimental urea may suffice to do this.

We have invariably obtained high figures for creatinin in normal persons, namely, from 3.2 to 4.82 mg. per hundred c.c. of blood. This has been a great disappointment in view of the definite normal and abnormal values and emphatic diagnostic and prognostic claims stipulated by Myers and Lough.[17]

The normal values for cryoscopy have been so variable, namely, from —0.45 to —0.51 degrees for δ and —0.59 to —1.39 degrees for Δ that we have been unable to place much reliance on the results. Therefore, compared with simpler tests, even with respect to the separately catheterized urines of each kidney, in comparison with the molecular concentration of the blood, cryoscopy of the total urine or of the blood alone is, or should be, obsolete. Factors, such as water, diet, polyuria and anemia, materially affect the cryoscopic determinations which, associated with the technical disadvantages, render the method useless.

The pathologic cases subjected to a comparative study of the various functional tests are presented in Tables 3, 4 and 5. Table 3 consists of cases of retention of urine. Of the seventeen cases studied, eleven were due to prostatic hypertrophy, three to prostatitis and seminal vesiculitis, and one each to obstructive contracture of the sphincter vesicae, stricture and carcinoma of the prostate. In all cases operation was successfully performed save in Cases 15 and 16, and organic disease contraindicated surgical intervention in these two cases. The first patient died in a few days of pyelonephritis, and the second case was so complicated by hypertension, myocarditis and dilatation that the patient died a month later. A review of this table reveals the following notable features: The onset of elimination of indigocarmin was noted in from eight to 100 minutes, while phenolsulphonephthalein appeared in the urine in from nine to ninety minutes. In five patients indigo, and in two patients phenolsulphonephthalein, did not appear for an hour or more after injection. Thus we emphasize that this period is not negligible in the quantitative estimation of either of these substances, so far as the first hour's output is concerned, and insist for the best and most reliable data relative to kidney function, that the quantity for the first hour should be timed from the moment of injection rather than from the onset of its elimination. The quantities eliminated for three hours varied from 2.53 to 34.33 per cent. for indigo and from 5.85 to 90.09 per cent. for phenolsulphonephthalein. The indexes of elimination of the two substances suggest a parallelism, but the results have not been so reliable in the case of phenolsulphonephthalein as with indigo. The index of indigo elimination has been extraordinarily trustworthy, and as a guide to kidney efficiency and operability has proved itself *par excellence,* the best at our command. Almost exclusive reliance on the index as an indication of the stability of kidney function in cases of prostatic hypertrophy during the last three years has been rewarded with recovery in every case of prostatectomy. In Case 3, in spite of an indigo index of 0 three weeks before a minor operation, the patient recovered. It will be observed, however, that the index for phenolsulphonephthalein immediately before operation was in the positive phase and the repetition of the indigo test was thought to be unnecessary. Case 15 showed the indexes for both indigo and phenolsulphonephthalein in the negative phase. Operation was not to be considered, and the patient died in a few days. Case 16 illustrates well the fact that the renal function is not the only consideration relative to operability. The patient was the victim of marked myocarditis with dilatation and hypertension, and died a month after his examination.

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[13] Obtained by voluntary urination every few minutes; it undoubtedly would have appeared earlier if tested by continuous catheterization.

[14] Kendall, E. C.: The Fate of Phenolsulphonephthalein when Injected into the Animal Organism, The Journal A. M. A., Feb. 3, 1917, pp. 343-345.

[15] Smith, R. L. I.: Renal Function in Nephritis, The Journal A. M. A., Jan. 27, 1917, pp. 278-280.

[16] Addis and Watanabe: A Method for the Measurement of the Urea Excreting Function of the Kidneys, Jour. Biol. Chem., 1916, **28**, 251.

[17] Myers, V. C., and Lough, W. G.: The Creatinin of the Blood in Nephritis: Its Diagnostic Value, Arch. Int. Med., October, 1915, pp. 536-546.

The total noncoagulable nitrogen varied from 22 to 106 mg. In eleven of the thirteen successful prostatectomies shown in this table, the nonprotein nitrogen exceeded the normal values found in Table 2, and in the cases of the patients who died from a few days to a few weeks after the functional tests were performed, the values for nonprotein nitrogen were no higher than in the cases of several of the patients successfully operated on.

The findings for blood urea nitrogen ranged from 8 to 74 mg. and closely paralleled the results of noncoagulable nitrogen.

The urine urea nitrogen results varied from 20 to 360 mg. per hundred c.c. and permit of no deductions of value; indeed, in comparison with the simple Doremus method, with findings from 2 to 30 mg. per cubic centimeter, the advantage is strongly in favor of the latter, although it is universally admitted that the sodium hypobromite method is susceptible of erroneous results.

It was hoped that Ambard's constant or quotient might furnish a more reliable index of renal efficiency than either the blood or urine urea separately. Unfortunately, this has not been true. In six of thirteen patients successfully operated on, the ureosecretory index was so high that operative intervention might be said to have been contraindicated. We agree, therefore with Jonas and Austin[18] and question whether the original formula[19] or McLean's[20] modification is truly the expression of the physiologic law underlying the relation between the urea concentration of the blood and urine and the rate of urea excretion.

Our results with creatinin have varied from 2.2 to 5.5 per hundred c.c. of blood. In a number of the patients successfully operated on the findings were higher than in a few patients who died shortly after the determinations.

The cryoscopic readings varied for the blood from —0.38 to —0.57 degrees; for the urine from —0.16 to —1.45 degrees. The results were such as to stamp this method as worthless so far as the proper treatment of such cases as are shown in Table 3 is concerned.

Table 4 comprises eight cases of nephritis — two of acute parenchymatous, three of chronic parenchymatous, two of chronic interstitial and one of chronic diffuse — studied with respect to the several functional renal tests. It will be noted that in the cases of acute and chronic parenchymatous nephritis, the quantitative output of both indigo and phenolsulphonephthalein was high, and also that almost without exception the indexes of elimination were in the positive phase. Contrasted with this it will be observed that in the chronic interstitial type of the disease, although the quantity eliminated for three hours was variable, the indexes of elimination were constantly in the negative phase. The noncoagulable blood and the urea nitrogen range from 42 to 98 mg. and from 14 to 25 mg., respectively. The urine urea determinations per hundred c.c. with urease or by the Doremus method were so variable as to be valueless. However, it is significant to note that the Ambard quotient in the cases of parenchymatous nephritis was uniformly high, above the normal, while in the cases of chronic interstitial and diffuse nephritis it was constantly low, below the normal. Apparently, this method may be utilized for the differentiation of parenchymatous and interstitial nephritis, and would seem to be more valuable in this respect than the determination of blood urea nitrogen or total nonprotein nitrogen alone, although as a matter of fact it furnishes no more information than is supplied by the index of elimination of indigocarmin or possibly phenolsulphonephthalein.

The values for creatinin vary from 3.21 to 5.4 mg., and are uniformly high. Improvement has occurred, since the determinations, in the general health of all patients, excepting Patient 4, who died recently.

The results of cryoscopy both of the blood and of the urine present nothing noteworthy, and may be disregarded in a study of nephritides.

In Table 5 we present eighteen pathologic cases, mostly prostatics studied only with indigocarmin and phenolsulphonephthalein, and although the findings demonstrate nothing not already shown in the previous tables, we believe the results to be of sufficient interest to warrant consideration, in view of the popular but unfounded preference for phenolsulphonephthalein as a functional kidney test. It will be observed that the parallelism existing between the results of the two substances is most striking, particularly with respect to the indexes of elimination. Discrepancies exist in only four instances, namely, Cases 3, 8, 11 and 15, and in the last the negative index for indigo was known to be due to improper collection of the hourly specimens of urine. For similar reasons, fallacious indexes for both indigo and phenolsulphonephthalein were obtained in Cases 12 and 17. In Case 3, the failure of phenolsulphonephthalein to appear for two hours after injection is inexplicable, unless the recent experimental work of Kendall is substantiated. In Cases 8 and 11 the disagreement between the indexes for indigo and phenolsulphonephthalein on the one hand, and the clinical conditions and subsequent states of the patients, on the other hand, furnishes further support to the belief that phenolsulphonephthalein does not lend itself so well as indigo to this method of determination. Finally, attention is called to Cases 6 and 11 in support of former assertions to the effect that the index of elimination of indigocarmin is a truer gage of renal function of a person than is merely the quantitative output for two hours, particularly if this hourly estimation ignores the period from the time of injection until the substance appears in the urine. In Cases 9 and 10, in which death followed prostatectomy, it is worthy of note that the indexes for both indigo and phenolsulphonephthalein were in the negative phase and contraindicated operation, in spite of the relative satisfactory quantitative outputs for the respective substances.

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[18] Jonas and Austin: The Value of the Ambard Quotient in the Estimation of Renal Function, Am. Jour. Med. Sc., October, 1916, p. 560.

[19] Ambard and Weill: Les lois numériques de la secretion rénale de l'urée et du chlorure de sodium, Jour. de physiol. et de path. gén., 1912, **14**, 753.

[20] McLean: The Numerical Laws Governing the Rate of Excretion of Urea and Chlorides in Man, Jour. Exper. Med., 1915, **22**, 212.

CONCLUSIONS

1. The analysis of the results of the several functional kidney tests employed in this study emphasizes our belief that of those utilized none possessed virtues superior to indigocarmin, not excepting the tests of retention.

2. Indigocarmin, in our experience, has been more trustworthy and practical than phenolsulphonephthalein.

3. In cases which may require an additional functional test for confirmatory judgment, phenolsulphonephthalein, total nonprotein nitrogen or urea nitrogen of the blood may be utilized.

4. Ambard's quotient was of questionable utility so far as the differentiation of nephritis is concerned, and possessed no actual advantage over indigo or phenolsulphonephthalein.

5. Cryoscopy of the whole blood and urine is valueless. If unilateral values are desired, ureteral catheterization is necessary and may be obviated by recourse to more modern and practical tests.

6. Creatinin of the blood and urine urea nitrogen either per hundred c.c. by the urease or by Doremus' sodium hypobromite method demonstrate results so variable as to be unreliable.

7. Irrespective of the finer medical aspects of renal function, the differentiation of glomerular and tubular nephritis, the detection of renal disease in its incipiency, etc., the best functional kidney test today is indigocarmin, at least for the surgeon, because it is not only the most practical test, but it is unsurpassed in reliability, whether employed for unilateral determination by the method of chromo-ureteroscopy or for total function through reliance chiefly on the index of elimination.[21]

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[21] The remaining article of this symposium, by Drs. Krotoszyner and Stevens, and the discussion will appear next week.

Occupational Training for the War Cripple.—It is the general consensus of experience that the decision by the man to undertake a course of training must be a voluntary one. Of course, he may be retained in the military organization and detailed to trade classes in the same way as he is detailed to guard duty, but this would not make for successful results. The unwilling and rebellious pupil learns but little, the earnest and ambitious one makes rapid progress. The man must be persuaded, therefore, to take up instruction; the future advantages of being a trained workman in some skilled trade should be pointed out, and the practical arrangements to be made for him during the course of instruction carefully explained. There is no royal road to success in this effort, but after gaining the soldiers's friendship and confidence, a patient persistence will win the battle. If a competent visitor has been in touch with the man's family during his absence at the front, the members of the home circle can be easily convinced of the wisdom of his reeducation; this will make all the simpler persuasion of the man himself.—Douglas C. McMurtrie: The War Cripple, Columbia War Papers.

RECURRENCE AFTER OPERATIONS ON THE BILIARY PASSAGES *

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CHICAGO

One of the reasons for the rapid growth of many a modern commercial enterprise is the exchange of experience at frequent cabinet meetings of the heads of departments, as to the cause for success or failure in their respective spheres of activity. We can profit by following such a method because the time has arrived when a discussion of the reasons why a certain percentage of our operations on the biliary passages is not successful is necessary. It is to this group of recurrence cases that we must devote our investigative energy in order to lessen their number. Statistics are of little value as to the percentages of satisfactory and unsatisfactory results unless practically all of the patients operated on have been actually examined at intervals for a number of years by the surgeon himself, and this is rarely possible. Recurrences may take place, as I shall presently show, many years after the original operation, and the patient may have been operated on by another surgeon long after the first operator considered the case as cured. A far more valuable contribution, it appears to me, would be for each one of us to report in the future, as Deaver[1] has recently done, the recurrence cases in which we have either actually operated or otherwise diagnosed. In this way the cases in which we have operated primarily can be studied, and a profitable discussion will result as to the causes of our failures.

My object is to follow out such a plan, and after a review of our present knowledge of the varieties of recurrences, to report a series of personal observations and suggestions as to their possible avoidance in the future.

DIVISION OF RECURRENCES

The most convenient classification of recurrences is into true and false. By true recurrences, we mean that an actual reformation of calculi has taken place as the result of the persistence or the recrudescence of a former infection.

TRUE RECURRENCES

In the early history of gallbladder surgery, reformation of calculi around foreign bodies like silk sutures was observed. Floercken[2] has collected eight instances of this form of true recurrence, but at the present time this need not be considered.

The question as to whether calculi can reform in the gallbladder has been greatly cleared up by the work of Aschoff and Bacmeister[3] which has been confirmed by Ehrhardt.[4] They found that the so-called glands of Luschka are in reality clefts in the wall of the gallbladder lined by epithelium. In the normal viscus they do not penetrate beyond the muscular coat; but in pathologic gallbladders they are found to extend to the serous coat, are greatly dilated, are filled with the products of inflammation, and are the cause of reinfection after cholecystostomy. At times, cholesterin calculi in the process of formation have been found in these crypts or glands of Luschka (Fig. 1), and thus one can readily explain the reformation of calculi after cholecystostomy by the extrusion of these minute calculi into the lumen of the gallbladder, thus serving as a nucleus for the formation of larger calculi.

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

[1] Deaver: Illinois Med. Jour., June, 1916.

[2] Floercken: Deutsch. Ztschr. f. Chir., 1908, **93**, 110.

[3] Aschoff and Bacmeister: Die Cholelithiasis, Jena, 1909, and also numerous references in Riese's article in Ergebnisse zur Chirurgie und Orthopedie, 1913, **7**.

[4] Ehrhardt: Arch. f. klin. Chir., 1907, **83**, 118.

Whether or not true reformation of calculi takes place in the common or hepatic ducts is at present an open question. The subject of intrahepatic cholelithiasis is a comparatively new one. Although Cruvelhier[5] in his atlas has an excellent illustration of this condition, the subject did not attract much attention until the appearance of the article by Beer,[6] who found it in six of seventy-two cholelithiasis cases (8.3 per cent.) at necropsy. In five of these, there were also common duct stones present, and in one they were present, in addition, in the gallbladder. Courvoisier[7] in 1890 had collected fifty instances, and Körte,[8] in 1889, said it might play an important part in prognosis after gallbladder operations. Lewisohn,[9] Jenckel,[10] Riese,[11] Quénu,[12] Deaver,[12] Kehr,[13] and I[14] have since observed the condition clinically. In one of my own cases this intrahepatic cholelithiasis was undoubtedly the cause of a recurrence (Fig. 4 of former article).

Taking all of these observations into consideration, we are justified in saying that a true reformation of calculi can occur in the gallbladder; a number of apparently authentic cases of this kind have been reported by Stanton[15] and others. In regard to the true reformation of calculi in the common or hepatic ducts after removal of the gallbladder, there is much doubt. Cases in which calculi are found in these ducts at secondary operations even after previous drainage and removal of calculi[16] are in all probability due to the descent of calculi from the intrahepatic bile passages, a fact which must be borne in mind in our prognosis of common or hepatic duct cases even when no calculi were found at the first operation.

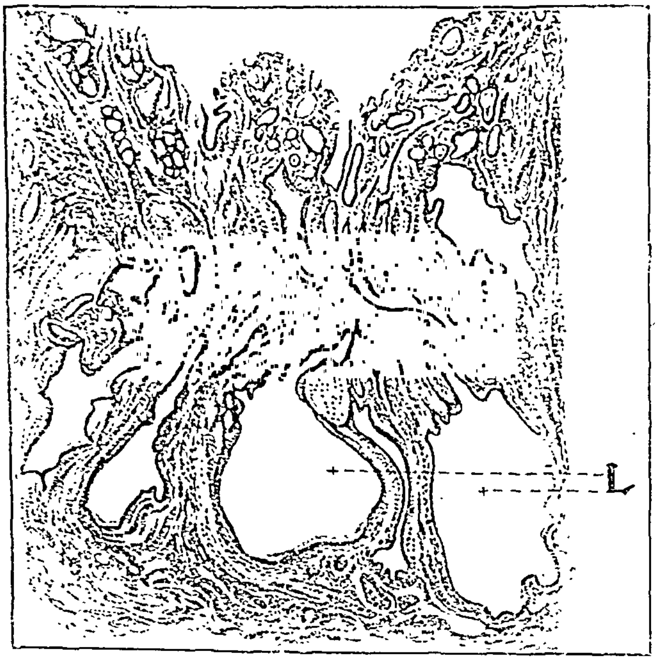

Fig. 1.—Section of gallbladder wall in case of chronic cholecystitis showing dilated crypts of Luschka (*L*) (Aschoff) which are the source of reinfection.

FALSE RECURRENCES

Under false recurrences I include: (1) overlooked calculi; (2) adhesions; (3) chronic pancreatitis; (4) persistence or recurrence of original infection; (5) strictures; (6) fistulas (internal or external); (7) faulty technic, for example, suturing gallbladder to the abdominal wall or insufficient removal of cystic duct, permitting the formation of a dilated stump,[17] with possible true reformation of a calculus in same; (8) incorrect diagnosis, for example, tabes and spinal tumors; (9) coexistence of two conditions, for example, ureteral calculus (see my own recurrence cases); (10) contraction of the ampulla of Vater, and (11) cancer of head of pancreas.

Persistence of infection, overlooked calculi and chronic pancreatitis constitute the majority of all causes of recurrence in my own experience, as well as in that of others who have written on this subject. Time will not permit of detailed consideration, but I have been more and more impressed with the fact, as my experience increases, that no surgeon who does not possess a thorough knowledge of the pathology of infection in the biliary tract can hope to progress in this field. The period has passed during which a surgeon who possesses only sufficient technical knowledge to drain or even to remove a gallbladder should operate in these cases.

PERSISTENCE OR RECURRENCES OF INFECTION

The fact that the calculi[18] are the result and not the cause of the infection is not so generally understood as it deserves to be. It is beyond the province of this paper to discuss the indications for cholecystectomy, but microscopic examination of the gallbladder after removal, in cases of persistence or recurrence of infection, clearly demonstrates the fact that every attack causes serious changes in the normal contractility and elasticity of the gallbladder which favor stagnation and provide ideal conditions for reinfection. The studies of Aschoff and others on thousands of gallbladders removed at operations clearly demonstrated the fact that the recurrence of persistence symptoms is due to the retention of infected secretion in the crypts of Luschka (Fig. 1), or even reformation of cholesterin calculi in them. Again, in many cases it is impossible to remove all of the crystalline detritus which we so often find on opening the gallbladder,[19] and if infection persists it is easy to see how recurrences can take place.

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[5] Cruvelhier: Reproduced in Moynihan's Book on Gallstones, 1904.

[6] Beer: Arch. f. klin. Chir., 1904, **74**, 115.

[7] Courvoisier: Beitr. z. Chir. d. Gallenwege, 1890.

[8] Körte: Zentralbl. f. Chir., 1889, **15**.

[9] Lewisohn: Ann. Surg., 1916, **63**, 535.

[10] Jenckel: Deutsch. Ztschr. f. Chir., 1910, **104**.

[11] Riese: Verhandl. d. Freien Verein. d. Chir., Berlin, 1904.

[12] Quénu and Deaver: Rev. de chir., 1914, **49**, 105.

[13] Kehr: Neue Deutsch. Chir., 1913, **8**.

[14] Eisendrath, D. N.: Overlooked Common Duct Stones, The Journal A. M. A., March 31, 1917, p. 968.

[15] Stanton (Ann. Surg., 1915, **61**, 226) reports one case of his own and has collected all of the published instances except those of Deaver (Surg., Gynec. and Obst., 1913, **17**, 667), who removed 100 calculi from the gallbladder and two years later 200 more. Kehr has seen true reformation only three times in 2,000 operations. Under recurrence cases, I report several examples of apparently true reformations.

[16] One can easily overlook common duct calculi at the *first* operation, especially if any small calculi were present. The escape of these through the T-tube is one of the great advantages of common duct drainage.

[17] Floercken (Deutsch. Ztschr. f. Chir., 1912, **113**, 604) found a dilatation of the cystic duct the size of a plum three years after cholecystectomy, and a brown calculus embedded in the wall of the dilatation and none elsewhere. In one of my cases (Case 657 of recurrences) two years after operation the cystic duct formed a pseudogallbladder 1 inch long, the size of an almond, containing a calculus the size of a millet seed (Fig. 2). Von Haberer and Clairmont (Arch. f. klin. Chir., 1904, **73**, 697) confirmed the work of deVoogt (Nederl. Tijdschr. v. Geneesk., 1898, **43**, 236), and Oddi (Centralbl. f. Chir., 1889, No. 8) found that a dilatation of the cystic duct stump followed removal of the gallbladder in dogs (Fig. 2).

[18] Naunyn was of the opinion that stagnation alone sufficed to explain the origin of gallstones, but Aschoff and every one else who has investigated the subject believes that infection is essential. Aschoff believes that aseptic cholesterin calculi may be present in the gallbladder for a long time, but that as soon as infection supervenes, the so-called secondary calculi are formed.

The question of recurrence of infection symptoms after common duct operations, even without the presence of calculi, is one that deserves further study in the near future, and must be borne in mind when one is making a prognosis after common duct operations.

OVERLOOKED CALCULI

Any one familiar with anatomy can readily understand how it is possible to overlook small calculi which lie beneath a fold of mucous membrane at the neck of the gallbladder or within one of the pocket-like tortuosities of the cystic duct (Fig. 2). I have frequently found such calculi in the examination of the specimen (after removal of the gallbladder and cystic duct) which I feel confident would have been overlooked.

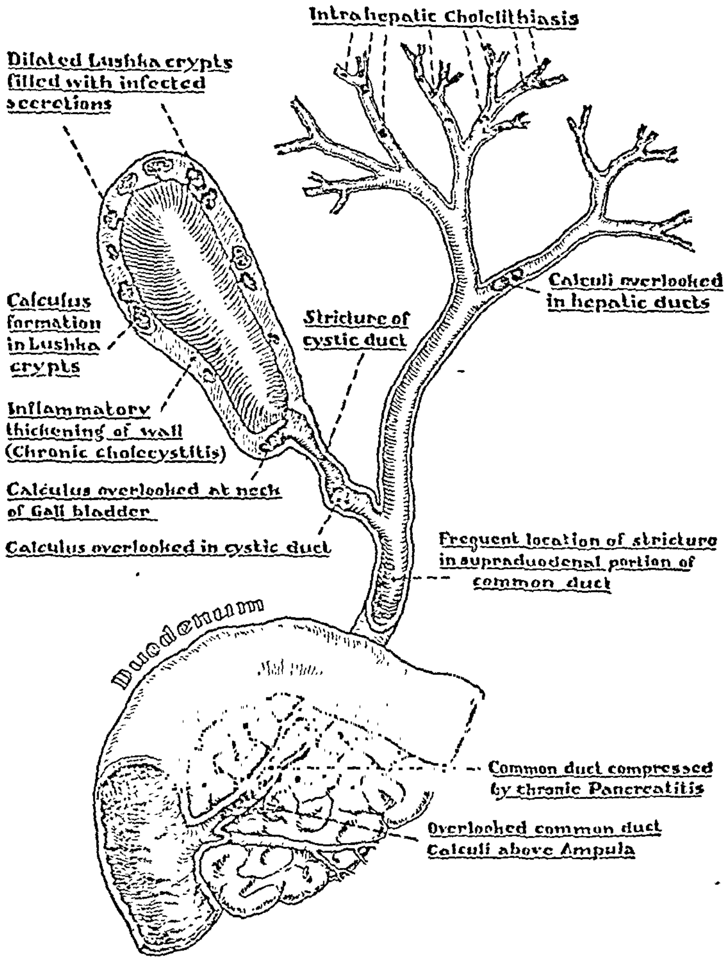
Intrahepatic Cholelithiasis
Dilated Lushka crypts filled with infected secretions
Calculus formation in Lushka crypts
Stricture of cystic duct
Calculi overlooked in hepatic ducts
Inflammatory thickening of wall (Chronic cholecystitis)
Calculus overlooked at neck of Gall bladder
Calculus overlooked in cystic duct
Frequent location of stricture in supraduodenal portion of common duct
Duodenum
Common duct compressed by chronic Pancreatitis
Overlooked common duct Calculi above Ampula

Fig. 2.—Diagrammatic representation of the more frequent causes of recurrence after operations on the biliary tract.

The presence of many small calculi in the gallbladder, associated as it has been so frequently in my own experience with calculi in the common duct, seems to me to be an indication for cholecystectomy with removal of the entire cystic duct, which we must add to our other indications for this operation.

In a previous communication,[14] the subject of overlooked common duct calculi was discussed. Further experience has strengthened the opinions expressed in that article.

During the past five years, in the course of a large number of operations on the biliary passages, I have explored the common and hepatic ducts in thirty-four cases in which palpation was negative. In eleven of these (32.3 per cent.) calculi were found on exploration in spite of negative palpation.[20]

The chief indication for opening the common duct in eight cases in spite of negative palpation was the presence of many small calculi in the gallbladder. In all of the eight cases of positive exploration after negative palpation the number of calculi in the gallbladder varied from twenty to three hundred.

In three cases the common duct calculi were the size of a pea, faceted, and fifteen in number. In the majority of the eleven cases the calculi were found in the supra-ampullary portion of the common duct, which is so difficult to palpate through the duodenum. In two cases a number of small calculi of the same size and composition as those in the gallbladder and common duct were either found in the hepatic duct or escaped in a perfect shower from this duct while the edges of the opening in the common duct were retracted. In one of these patients there has been a recurrence of symptoms in spite of a cholecystectomy and choledochostomy with removal of calculi from the common duct. In one case symptoms of cholangeitis recurred three years later, and death was due to this cause.

The indications for opening the common duct were the same[21] as those first emphasized by Kehr[22] to which I have added the recurrence of symptoms of cholangeitis after previous operations on the gallbladder or common duct.

That common duct and hepatic calculi are so frequently overlooked is due to several causes. First, choledochostomy is considered to be a far more difficult operation and accompanied by a much higher mortality than it deserves to be, and this deters many competent surgeons from doing as thorough an operation as they ought to do. Second, we are accustomed to be content with palpation of the supraduodenal portion of the common duct, and unless this is positive or there are definite obstruction symptoms, one is apt to omit further operative interference. Third, recent articles[23] and my own experience reveal the fact that we must change our views in regard to the symptomatology of common duct calculi. There is a group of cases which I have termed the silent common duct calculi which show none of the symptoms hitherto thought characteristic of calculi in this location. In nine of my own cases in which no previous operations had been performed the principal symptoms were: 1. Pain, for months to years not to be distinguished from that due to the gallbladder. 2. Icterus, slight and only during attacks of pain in three cases. In two cases there had been distinct icterus during the attack. In the remaining four cases there was no icterus at any time. 3. Chills and fever, present in only two cases of the nine. 4. Variation of the common duct in size from a little finger to a thumb. 5. Hardness and enlargement of the pancreas in only three of the eleven cases.

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[19] The same thing holds true for the common duct, and some of the cases of recurrence after drainage and removal of calculi are accompanied by the constant discharge of such crystalline débris from the T-tube. One can readily see how a recurrence of symptoms can occur if sufficient of this material collects in the common duct. A study of *276 common duct* cases by Bruning demonstrates that one can have symptoms of severe cholangeitis without the presence of calculi, and that these may persist after drainage of the common duct.

[20] I may be criticized for being unable *to palpate calculi in* the common duct; but when one considers that the greater portion of the duct must be palpated *through the entire* thickness of the duodenum and that the majority of the calculi were not larger than a pea and were embedded in thick bile, as a rule, I can readily see why they have escaped detection by others as well as myself *in the past*. Kehr (Arch. f. klin. Chir., 1912, **97**, 301), in 46 per cent. of thirty-six cases in which palpation of *the common* duct was negative, found calculi either in the hepatic ducts or the retroduodenal portion of the common duct.

[21] These indications are: (*a*) presence of many small calculi in the gallbladder or cystic duct; (*b*) chronic *pancreatis* (*c*X) thick walled, dilated common duct, and (*d*) when patients whose gallbladders have been previously removed are *reoperated on*, if the common duct is dilated or thick walled, and there have been symptoms of cholangeitis (icterus, chills, etc.).

[22] Kehr: Arch. f. klin. Chir., *1912*, **97**, *301*.

[23] Kehr: Neue deutsch. Chir., 1913, **8**. Moynihan: Gallstones, 1904. Brüning: Deutch. med. Wchnschr., 1912, No. 33.

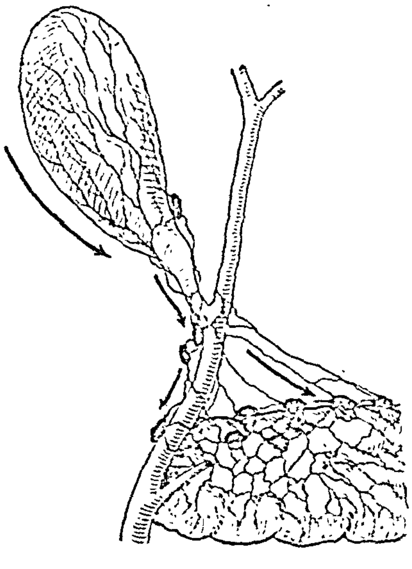

Fig. 3.—Relation of lymphatics of biliary tract to those of pancreas. Arrows indicate direction of flow of lymph from gallbladder and common duct to lymphatics of pancreas. Note relay lymph nodes at neck of gallbladder, along common duct and upper border of pancreas. (After Franke.)

As our knowledge of intrahepatic cholelithiasis increases, we are better able to understand why recurrences take place even after drainage of the common duct and removal of calculi. In one of my cases, calculi similar to those of the first operation were found at the second opening of the common duct, and this has been the experience of Deaver, Mixter and others.

When one has reason to suspect the presence of many calculi within the liver, prolonged drainage is our only method at the present time in order to lessen the chances of recurrence.

PANCREATITIS

Whether or not infection of the pancreas occurs as does that of the gallbladder in many instances by the hematogenous route is still under investigation. The close relation of the lymphatics (Fig. 3) of the biliary tract to those of the pancreas readily explains its involvement. The more chronic indurative forms of pancreatitis with resultant compression[24] of the common duct plays an important part in favoring stagnation of the secretory current in the bile ducts. In Deaver's series[12] of forty-two recurrences in 1,031 operations, chronic pancreatitis was the cause in five, a little over 10 per cent.

ADHESIONS, STRICTURES AND FISTULAS

"Adhesions" is often a diagnosis under which sins of omission are hidden, and should not be made until a thorough roentgenographic examination has been made. There are as a rule fewer adhesions after cholecystectomy, but even here one is often surprised to find a broad surface of the duodenum adherent to the carefully sutured gallbladder bed.

The longer a calculus lies impacted in the neck of the gallbladder or cystic, hepatic or common ducts, the greater is the danger of ulceration, with subsequent formation of a stricture. This is a strong argument for early and radical operation if the patient is not too septic. Fistula formation after operation is a rarity, since removal of the gallbladder is being employed as a routine measure by the majority of operators.

FAULTY TECHNIC

If only drainage of the gallbladder is performed, the method of anchoring the fundus to the parietal peritoneum should be discarded. It leaves a long tube fixed at both ends whose muscular contractions are greatly interfered with. Dropping the gallbladder back after insertion of a tube into its fundus is the most rational procedure.

The increasing frequency with which we find a dilated stump (Fig. 4) of the cystic duct, often containing one or more overlooked calculi, is the strongest plea for removal of the entire cystic duct close to the common duct,[25] during cholecystectomy.

INCORRECT DIAGNOSES AND COINCIDENCE OF TWO CONDITIONS

Coincident with the perfection of our methods of diagnosis, we find that many patients primarily operated on under the diagnosis of cholecystitis are in reality suffering from spinal lesions with referred pain, or tabetics whose visceral crises were interpreted as being genuine gallbladder attacks.

I have recently observed a patient with a gangrenous cholecystitis with many calculi who returned one year after a cholecystectomy with severe right upper quadrant pain which roentgenographic examination revealed to be a right ureteral calculus close to the kidney as the cause of the recurrence.

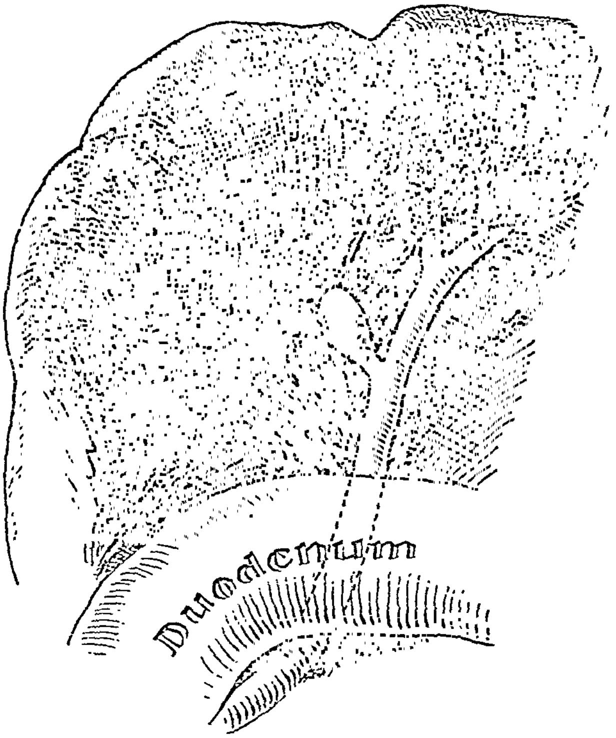

Fig. 4.—Condition found two years after cholecystectomy. Stump of cystic duct dilated to form new gallbladder. Latter contained small calculus.

TECHNIC OF CHOLEDOCHOSTOMY

I believe that drainage of the common duct has every advantage over primary suture as advocated by Crile.[26] He compares the common duct to a rubber tube with both ends patent, but he does not take into consideration the inflammatory swelling of the pancreas which invariably accompanies common duct infection and thus obstructs the exit of the infected bile through the ampulla.

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[24] I have operated in cases resembling in every respect obstruction of the common duct by calculi, which were due to compression of the intrapancreatic portion of the duct by a chronically indurated pancreas.

[25] Under technic I refer to the anomalies of the mode of union of the cystic and hepatic ducts which must be borne in mind.

[26] Crile, G. W.: Drainage Versus Immediate Suture of the Common Duct, The Journal A. M. A., May 2, 1914, p. 1373.

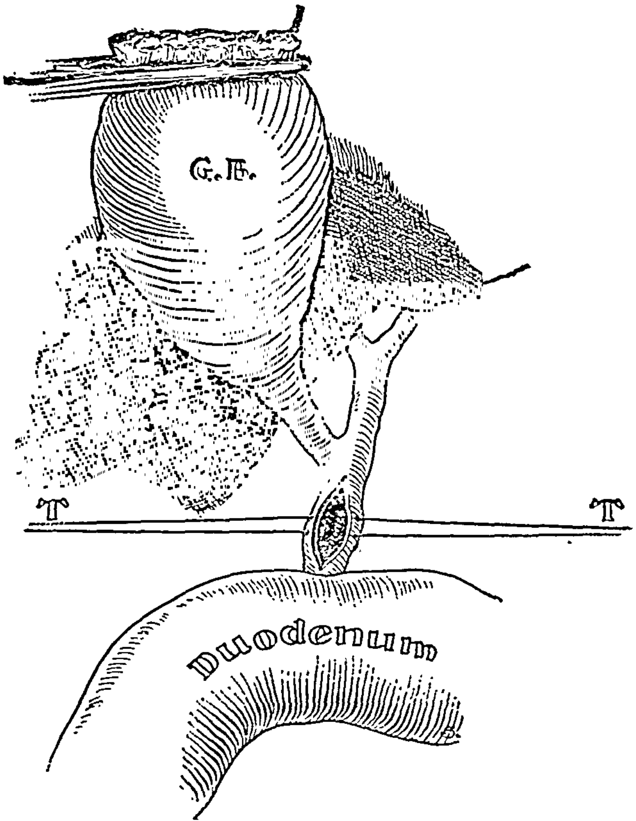

Fig. 5.—Supraduodenal choledochostomy. Edges of incision in common duct pulled apart by traction sutures (*T*, *T*) preliminary to exploration of common and hepatic ducts.

The steps of the technic which I employ are best understood by a study of Figures 5, 6 and 7.

Step 1.—The incision to expose the gallbladder extends from the angle formed by the ensiform process and costal arch downward through the inner third of the right rectus muscle to a little above the level of the umbilicus. The patient's lumbar region has been previously elevated by the device attached to the operating tables in common use. This incision not only permits the most perfect exposure of the common and hepatic ducts as well as the gallbladder, but also enables one directly to inspect the stomach and duodenum. It is surprising how close to the abdominal wall such an incision brings the principal bile passages.

Step 2.—After the stomach and duodenum have been inspected, the gallbladder is examined; and if calculi are contained therein, these are removed by the generally accepted method of an incision through the fundus of the gallbladder after its contents have been aspirated with the trocar and rubber tube attached to a 3-ounce metal syringe.

Step 3.—To expose the bile ducts, the fundus of the empty gallbladder is grasped by a long-bladed artery forceps and an assistant is instructed to make gentle traction in the direction of the right shoulder. This procedure also pulls the right lobe of the liver in the same direction, as first suggested by Mayo-Robson. The neck of the gallbladder, and the cystic, hepatic and common ducts are now exposed. If these structures are enveloped in adhesions, the exposure obtained enables one to separate and ligate the adhesions and to cover with suture raw surfaces by sight and not by touch. A very important detail in securing a good view of the common duct is to have the proper retraction not only of the gallbladder and right lobe of the liver, but also of the stomach, transverse colon and of the omentum, toward the left and in a downward direction. Such retraction is best secured (*a*) by the use of the Deaver and Kelly retractors, (*b*) by not packing too much gauze into the abdomen, and (*c*) by instructing the assistants (preferably only two being employed) only to keep up firm retraction and not to relax their grasp from time to time, thus permitting the viscera mentioned to drop into the field and cover the common duct.

Step 4.—In the surgery of the common and the hepatic ducts I prefer to employ instruments and suture material as fine as those used for eye operations in opening the common duct. The hepatoduodenal ligament is first identified as marking the right border of the envelope of peritoneum covering the common duct, portal vein and hepatic artery. Retraction of the structures (especially the duodenum) around the common duct permits the latter to be readily seen, covered by a thin layer of peritoneum which is divided by fine scissors, and the opening thus made is widened by spreading it with blunt-bladed curved scissors. Two traction sutures of very fine (00) catgut are inserted (Fig. 5) with an extremely small needle (such as is used for eye work) through the wall of the common duct in its supraduodenal portion. There are a few small veins which run parallel to the duct, and occasionally an anomalous small artery which passes transversely across the front of the duct. Bleeding from both of these vessels is easily controlled by a transfixion ligature. The duct is now incised with fine, preferably angular, scissors for a distance of one-fourth to one-half inch. It is a wise precaution before opening the common duct to place a gauze sponge into Morison's pouch over the right kidney. The opened common duct is now examined with a common duct spoon in an upward direction into the hepatic ducts and then downward as far as the ampulla until one feels certain that no calculi have been overlooked. A flexible probe is finally passed through the papilla in order to be sure that the lower end of the common duct is not obstructed.

Step 5.—In drainage of the common duct I prefer the T-shaped rubber tube first used by Kehr, which is now employed in this country by Deaver and others, including myself. The opening in the common duct is closed around this tube with the same size chromic catgut (Fig. 7) which was employed in the traction sutures described in Step 4. The tube itself (whose horizontal limbs should project only about one-fourth inch beyond the vertical portion) is held in place with a plain catgut suture.

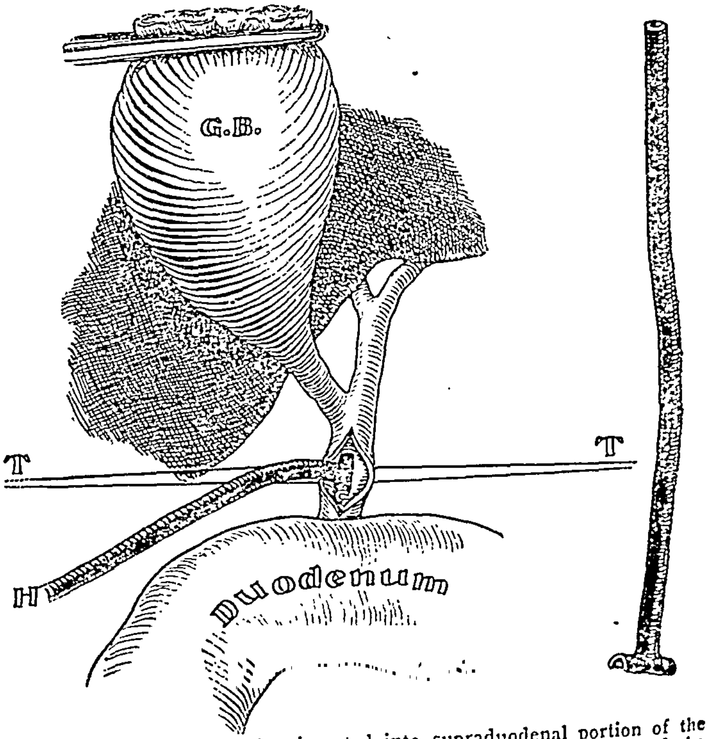

Fig. 6.—T-tube (*H*) being inserted into supraduodenal portion of the common duct through incision shown in Figure 5. The edges of the incision are pulled apart by traction sutures (*T*, *T*). Note on the right of picture how horizontal limbs of T-tube are only one-fourth inch long and how half of circumference of horizontal limb has been removed.

Step 6.—I prefer to do the cholecystectomy if one has decided that the pathologic changes in the gallbladder demand its removal, after the common duct exploration and drainage, because the gallbladder is a very convenient tractor for the common duct. Kehr reverses the steps by first removing the gallbladder and cystic duct close to the common duct, and then enlarging the cut end of the stump of the cystic duct so as to make an opening in the common duct large enough to explore both the latter and the hepatic duct, introducing his T-tube through the same opening.

The technic of cholecystectomy requires no special description. I first carefully separate the neck of the gallbladder and cystic duct from the common duct before ligating the cystic artery, which runs as a rule along the upper border of the cystic duct. The latter should be ligated as close (Fig. 8) as possible to the common duct in order to avoid the formation of a gallbladder in the dilated stump of the cystic duct. The careful separation just mentioned enables one to avoid injury of the common duct if, as frequently occurs, the diverticular-like enlargement at the neck of the gallbladder is adherent to the common duct, or if any of the anomalies in the course of the bile ducts described in another article[27] are present.

A small rubber tube is sutured with plain catgut down to the ligated stump of the cystic duct to take care of a possible leakage. Three strips of gauze 2 inches wide are placed around the common duct T-tube, one of these strips being placed well down into Morison's pouch over the right kidney. The gauze strips are pulled out at the end of eight days, and a single narrow one put in their place. The T-tube is allowed to remain from fourteen to twenty-one days,[28] and can be easily removed at that time; it will do no harm if it remains even longer. In nearly forty choledochostomies I have never encountered a case in which the tube could not be removed by employing gentle traction, and have never seen a common duct fistula follow its employment. I usually clamp the tube at the end of five or six days if too much bile is escaping into the dressing.

SECONDARY OPERATIONS BY THE AUTHOR FOR CASES OF RECURRENCE

1. *Persistence of Infection After Cholecystostomy.*—Case 1 (766).—Cholecystostomy for cholecystitis without calculi had been performed by another surgeon. There was recurrence of acute symptoms fourteen months later. A much thickened gallbladder was found anchored to the abdominal wall. Cholecystectomy was followed by complete cessation of symptoms.

Case 2 (1448).—Drainage and removal of a large calculus had been performed in 1910. There was persistence of pain, and then hyperacute symptoms of sepsis in 1916. Removal of thick walled gallbladder and drainage of common duct containing only tarry bile was of no avail. A toxic condition due to persistence of intrahepatic infection (cholangeitis) existed many years, with resultant hepatic insufficiency, and was the direct cause of death.

Case 3 (1431).—Cholecystostomy for cholecystitis without calculi had been performed by another surgeon in 1908. There were no symptoms until 1915, when a typical acute attack occurred. There was a very thick gallbladder with an area of gangrene at the neck, where a large calculus was impacted. Removal of the gallbladder was followed by absence of further symptoms.

Case 4 (314).—Two oval calculi, each 1 inch long, had been removed, and the gallbladder drained after suturing it to the abdominal wall, by another surgeon in 1896. There were no symptoms until 1908, when a sudden onset of severe pain occurred over the former incision. A secondary cholecystostomy was performed, with removal of two stones the size of marbles from a very rigid gallbladder. This is probably a true recurrence.

2. *Biliary Fistulas Due to Obstruction of Neck of Gallbladder.*—Case 5 (323).—There had been hydrops of the gallbladder with a large stone at the neck. Drainage and removal of the calculus had been done by another surgeon. Ulceration at the neck, where the stone had lodged, was noted at this first operation in June, 1915. A secondary cholecystectomy for persistent biliary fistula was performed. The fistula was due to a stricture at the neck of the gallbladder. Complete recovery followed.

Case 6 (618).—Cholecystostomy for cholelithiasis had been performed in 1906. A biliary fistula persisted until 1910. I performed a secondary cholecystectomy for very thick walled gallbladder with stone impacted in the cystic duct. There were no recurrence symptoms after the second operation.

3. *Persistence of Infection After Cholecystectomy and Drainage of Common Duct.*—Case 7 (895).—The first operation had been performed in 1912. This consisted of a cholecystectomy for a much thickened gallbladder containing many small calculi and showing acute supervening or chronic changes. The common and hepatic ducts were negative to palpation, but were opened because they were greatly dilated, and because of many small calculi being found in the gallbladder. Nine calculi ranging in size from a pinhead to a pea were found in the common duct, and a small number of similar ones were found in the hepatic duct. T-tube drainage of the common duct was done for four weeks. There was recurrence of symptoms one year later in the form of severe colicky pains and jaundice.

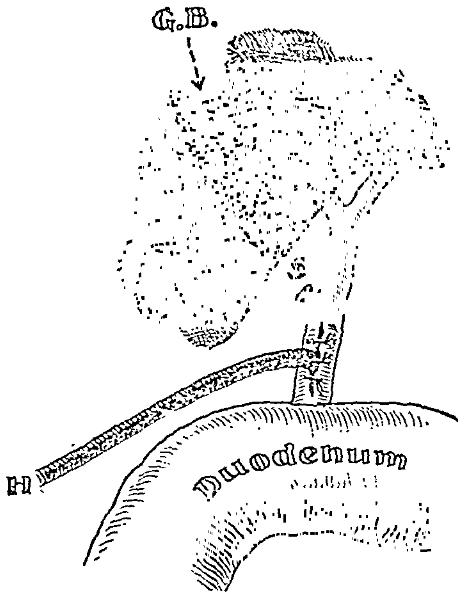

Fig. 7.—Appearance at completion of operation. Note liver bed from which gallbladder (*G. B.*) has been removed: also observe how close cystic duct (*S*) is ligated to common duct; and also T-tube (*H*) inserted into common duct.

The second operation was performed in 1915. Icterus and sepsis were the principal symptoms. The common duct was the size of two adult thumbs and was negative to palpation, but it contained a large amount of sandy detritus and small pigment calculi, as found in the previous condition. Septic symptoms were not relieved by drainage of the common duct, and the patient died a week later of septic pulmonary and enteric complications.

Case 8 (280).—There was a history of many years of recurrent attacks of pain and icterus. The first operation was performed in January, 1916. A thick walled gallbladder contained hundreds of small calculi and was removed. The common duct was negative to palpation, but fifteen calculi of the same size as those in the gallbladder were found lying in thick tarry bile just above the ampulla. There was no recurrence of symptoms for nine months, then severe pain and slight icterus appeared and have continued at intervals. Secondary operation was refused.

4. *Overlooked Common Duct Stones.*—Case 9 (657).—Cholecystectomy by another surgeon had been performed in 1910 for a small hard gallbladder containing two large calculi. Fragments of calculi and sandy detritus were found in the cystic duct. There was recurrence of pain and icterus

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[27] Surgical Clinics of Chicago, August, 1917. The cystic duct, instead of emptying into the hepatic duct at an acute angle, may (a) run parallel to it for a variable distance, (b) wind around it, or (c) may empty into its posterior wall.

[28] Deaver strongly advocates prolonged drainage. He has left the T-tube in one patient for over three years.

two years later. At a second operation in 1912 the cystic duct was found dilated, forming a pseudogallbladder 1 inch long containing a calculus the size of a millet seed. The common duct was much dilated and negative to palpation, but two bean-sized calculi were found. The pancreas was very hard and lobulated. There were no further symptoms.

Case 10 (1426).—Cholecystostomy and negative exploration for calculi in the gallbladder had been performed by another surgeon in 1913. There was recurrence of symptoms eighteen months later (pain and icterus). At a secondary operation a much thickened but empty gallbladder was removed. The common duct was negative to palpation, but a stone the size of a navy bean was found. The pancreas was soft. There was no further recurrence.

Case 11 (1454).—The first operation by another surgeon had been performed in June, 1916. This was a cholecystostomy with removal of a large number of small calculi. The second operation was in December, 1916, a cholecystectomy by the same surgeon for biliary fistula due to overlooked stone in the cystic duct. There was recurrence of symptoms four weeks later (fever, icterus, pain). At the third operation in January, 1917, all the bile ducts were found much thickened and dilated. One calculus the size of a bean was firmly impacted in the papilla of Vater, and there were two smaller ones proximal to it. There was no recurrence of symptoms.

5. *Recurrence Due to Common Duct Injury During Cholecystectomy.*—Case 12 (1219).—Cholecystectomy had been performed after the removal of two calculi the size of marbles from a gallbladder showing many abscesses in its wall. Accessory cystic artery crossing behind the hepatic duct was overlooked with resulting severe bleeding and some narrowing of the hepatic duct during ligation of the vessel. The operation was followed by severe chills, fever and icterus. At a second operation, four weeks later, several small abscesses were found in the liver. The patient recovered from all cholangeitis symptoms except icterus, which has persisted. In this case the septic condition of the gallbladder favored liver infection after the hepatic duct had been narrowed.

6. *Recurrence After Cholecystectomy Due to Extrabiliary Causes.*—Case 13 (1303).—Cholecystectomy had been performed for grangrenous cholecystitis with many calculi in the gallbladder. The patient returned ten months later with severe colicky pain in the right upper quadrant, which was found to be due to a calculus impacted in the upper portion of the right ureter.

30 North Michigan Avenue.

ABSTRACT OF DISCUSSION

Dr. W. Wayne Babcock, Philadelphia: I would emphasize the value of cooperation between surgeons. Much good would be accomplished by observance of a rule that every surgeon should report back to the original operator the results he finds when the patient comes for a secondary operation. We know some of the bad results when our patients return to us. We know perhaps more of results of other surgeons, because the tendency is for our patients to go to others and the patients of others to come to us. If, therefore, we might have a surgical clearing house, or some method by which we could compare results, it certainly would be of special value in a subject so important as this.

There is no pathologic condition in the abdomen which is permitted to continue as many years without treatment as gallbladder disease. In the first stage of gallbladder disease, that before the formation of stones, there is one operation to be performed — cholecystectomy. From a study of Dr. Eisendrath's cases and those of others it will be found that there are then practically no recurrences. The second stage, in which stones have formed in the gallbladder, likewise is to be treated, for the most part, by cholecystectomy. In the first stage our mortality should be under 1 per cent.; in the second stage, not over 3 to 5 per cent. in the best hands. In the third stage, that of terminal complications, conditions are different; patients are older; there has been an interval of from twenty to thirty years from the inception of the cholecystitis to the operating table and the mortality exceeds 15 per cent. In this stage cholecystostomy, cholecystectomy and, especially, anastomotic operations must be considered.

Dr. John B. Deaver, Philadelphia: Dr. Eisendrath has called attention to a valid cause for the reformation of stones after a cholecystostomy by the persistence or recrudescence of infection lodged in the minute glands of Luschka. All of the eleven recurrent cases (in about 200 gallstone operations) in my experience at the German Hospital, Philadelphia, during 1916 and up to the present took place after a primary cholecystostomy. Gallstones had reformed in the gallbladder in two of the cases, and in one case stone was found in the common duct; in another case, in addition to stone in the gallbladder, sandy bile was found in the hepatic duct, where it had caused occlusion of the lower part of that duct. This patient had undergone a cholecystostomy four years previously at another hospital and a choledochostomy had been performed by me two years prior to this meeting. The recurrence of symptoms in the other case was due either to adhesions or to dilatation of the common duct (one case).

Dr. Eisendrath referred to two cases in which incision of the common duct, with retraction of the edges of the wound in the duct, was followed by the escape of a shower of small stones from the common duct. I have seen this in numerous cases of cholangeitis, pancreatic lymphangitis and chronic pancreatitis the result of long-standing gallstone disease. The establishment of permanent drainage in these cases has proved of marked benefit.

Pancreatic or peripancreatic lymphangitis I believe to be an important factor in causing the reappearance of symptoms in these gallstone cases.

The anatomic relationship between the lymphatics of the gallbladder and those of the pancreas, as has been shown by injection of the former through the latter, and the chain of lymph glands to the number of five or six along the cystic and the common ducts, easily explain how an infected gallbladder can play havoc with the pancreas, one of the most important organs in the body, not only because of its digestive function, but also because of its influence on the functions of other glands with an internal secretion. It is therefore of the utmost importance for the medical man not to dilly-dally with cases presenting symptoms of biliary infections, but to send them early for operation. Pancreatitis is the cause assigned for recurrence of symptoms in fully 10 per cent. of the patients who have come to me for reoperation. This is explained by the close anatomic connection between the common duct and the head of the pancreas, the latter when enlarged obstructing the duct.

Dr. E. MacD. Stanton, Schenectady, N. Y.: During the past ten years in collecting data on the end-results following gallbladder disease I have found that the actual facts, so far as I have been able to ascertain them, do not bear out a number of the conceptions vigorously maintained by many surgeons prominent in this work. It has been asserted that so-called cholecystitis without stones is a forerunner of gallstone disease; and that gallstones themselves are the results of an infection of the biliary tract by micro-organisms.

The latter assumption is, I believe, based on insecure data. The patients uncured of cholecystitis following cholecystostomy do not develop stones in a proportion greater than would be expected from the increasing age of the patients. The incidence of gallstones bears little if any distinct relation to demonstrable preexiting infection, but, on the contrary, does bear a distinct relationship to certain broad factors of sex and metabolism which point strongly to the assumption that the cholesterin-lipoid metabolism hypothesis of Ashaff, so well stated recently by Rothschild, is approximately the correct explanation of gallstone formation.

The actual available data show conclusively that so-called cholecystitis without stones and gallstone disease are etiologically as well as pathologically distinct and separate conditions. The symptoms in both diseases are similar, but the factors governing the end-results are different and, until we learn to separate the two groups whenever we attempt to estimate end-results, we shall continue to have confusion in our ideas on the subject. Cholecystitis without stones is not cured by cholecystostomy, but I want to emphasize that the end-results following gallstone operations bear no definite relation to the amount of infection in the gallbladder present at the time of the operation. Infection does occur frequently as a complication of gallstones, and this infection may greatly increase the dangers and difficulties of the operation, but provided all stones are removed and there be no coincident duct strictures, the complicating infection of itself clears up promptly and has little demonstrable influence on the end-results.

SACRO-ILIAC JOINTS IN OBSTETRICS AND GYNECOLOGY *

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There has been so much discussion during the last decade about the sacro-iliac joints and kindred orthopedic conditions causing sacrolumbar backache, that it ought to have been sufficiently impressed on the profession that pain in this region might be due to a condition in the back itself; yet many women are unrelieved of their suffering during pregnancy, are submitting to endless local gynecologic treatments, and are undergoing useless pelvic operations because they have never had their backs examined.

Many of these women, who have been "going the rounds" of physicians' offices, have a sacro-iliac affection as their sole trouble, or as a result of their pregnancy or gynecologic condition. The fact that I have seen many of them overlooked is my only apology for again laying stress on such a common symptom as backache.

The anatomy of these joints is still a subject of contention; Goldthwaite and Osgood,[1] Meisenbach,[2] Albee and others agree that the sacro-iliac articulation is a "true joint, having all the common joint structures, and naturally subject to the same diseases and injuries as other joints" (Goldthwaite).

The opponents of this idea aver that the articulation is a synchondrosis, immovable except under pathologic conditions. However, all agree that there is physiologic mobility during pregnancy.

When one sees a gynecologic case with the same symptoms as he finds in the demonstrable relaxation of pregnancy, and yielding to the same treatment, he may be justified in considering them the same thing.

Movement of these joints during pregnancy is amply proved by the enlargement of the inlet in the Walcher[3] position and of the outlet by the exaggerated lithotomy position, neither of which increases could occur unless the sacro-iliac joints permitted movement of the sacrum on the ilia. This has been recognized for years.

Cantin,[4] in 1899, demonstrated mobility in 98 per cent. of 500 cases, in 15 per cent. of which there were symptoms.

Snelling,[5] in 1870, called attention to the significance of these relaxations, and said: "Relaxation of the pelvic articulations becomes apparent suddenly after parturition or gradually during pregnancy, permitting a degree of mobility which hinders locomotion and gives rise to most peculiar distressing and alarming sensations." His warning, given forty-seven years ago, has not been generally heeded.

The first case that called Goldthwaite's[1] attention to relaxation of the pelvic joints was due to pregnancy. Even the numerous articles and abundant discussion started in 1905 by the paper of Goldthwaite and Osgood have not been sufficient to make the profession realize that every woman with a backache should have her back examined.

The results of relaxation in pregnancy vary from simple backache or even less than a definite ache, only slight discomfort, to an inability to move without the most intense suffering.

Most women, except in the very severe cases, believe backache to be a necessary part of pregnancy and to be endured with womanly fortitude. I fear that too many physicians think the same thing.

I shall not attempt to report in detail a long series of cases, but will confine myself to giving the essential points in a few cases which illustrate some phases of the subject. The milder cases give only moderate discomfort, which, however, on account of the constant prolonged irritation during pregnancy, give rise to nervous symptoms and are a large factor in the neurasthenia of pregnancy. I have seen a properly fitted combination maternity corset, abdominal support and sacro-iliac belt change an irritable neurasthenic, bemoaning her pregnant state, into a happy, contented, prospective mother.

REPORT OF CASES

Case 1.—This illustrates the extreme disability of pregnancy. Mrs. G. was eight months' pregnant, and was unable to walk without assistance; her figure bent in an attempt to protect the painful joint. Examination revealed left sacro-iliac relaxation, which was immediately relieved by tightly strapping the pelvis. She walked out of the office unassisted, erect and smiling.

Case 2.—This illustrates how pregnancy may initiate sacro-iliac trouble and be aggravated by subsequent pregnancies, and finally how trauma may cause almost total disability. Mrs. B. had pain in the back during her first pregnancy, had been fairly comfortable after her delivery, but had to wear a belt to insure complete relief; the difficulty returned during her second pregnancy, and now in her third I had advised wearing the belt to avoid trouble. In an automobile accident she was rendered almost entirely incapable of movement on account of the sacro-iliac pain. By substituting adhesive straps for her belt she was made more comfortable, but was not free from pain. After delivery she began to improve, and in a few months could go without her belt.

Case 3.—This case illustrates how easily a traumatic injury to the sacro-iliac joints may occur during pregnancy. Mrs. McC. went to the telephone; a rug slipped from under her as she arose, and in her attempt to regain her balance she was suddenly seized with a sharp lancinating pain in the back and fell to the floor. She found that she was unable to move, and had to be assisted to bed. When I saw her a few hours later I found an extremely painful left sacro-iliac joint, which was greatly relieved by strapping. I sent a trained corsétière to fit her with a combination maternity corset and sacro-iliac belt. This corsétière, who is a sufferer from sacro-iliac relaxation, wears a belt constantly, which she put on the patient to test her needs. The belt gave her so much comfort that she refused to give it back, and continued to wear it till her own was made. She had gone through two previous pregnancies without any backache.

Case 4.—This case illustrates the trouble first appearing in the puerperium. Mrs. S. had gone through her pregnancy comfortably. In the night of the first day after her delivery

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

1. Goldthwaite and Osgood: Boston Med. and Surg. Jour., May 18, 1905.
2. Meisenbach: Surg., Gynec. and Obst., May, 1911.
3. Walcher: Centralbl. f. Gynäk., **13**, 5892.
4. Cantin: Thèse de Paris, 1899.
5. Snelling: Am. Jour. Obst., **11**, No. 4.

she was suddenly awakened by a sharp excruciating pain in the back when she attempted to turn over in bed. When I saw her in the morning she had a very tender right sacro-iliac joint. Her pelvis was tightly strapped, followed by immediate, complete and permanent relief.

Case 5.—This was another case in which my attention was first called to backache during the puerperium. A couple of days after the delivery of Mrs. D., the nurse reported that the patient could not sleep on account of backache, which on examination proved to be a tender right sacro-iliac joint, which was relieved by strapping. When explaining the condition to this patient, I remarked that many women had the same condition during pregnancy and often would not complain when they could just as well be relieved. She said, "That is my case; I have had this pain almost all the time I have been carrying my baby, but I thought it was a necessary part of my condition and I did not want to appear 'babyish'." I now question all of my patients about backache, and thus save much unnecessary suffering, for if one waits for complaints, he will discover only the bad cases.

Case 6.—This illustrates the neglected case with final relief. Mrs. M. had characteristic symptoms of sacro-iliac relaxation during pregnancy. She was strapped with adhesive plaster, which gave her instant relief, but the adhesive was badly applied, resulting in blisters which provoked her, and she refused further treatment by belt or corset. She went through an uncomfortable pregnancy and puerperium. She resented any suggestion of treatment addressed to the pelvis, and went to an osteopath; receiving no relief, however, she finally returned, thinking she might have recurrence of a uterine misplacement, for which she had been treated. Nothing abnormal was found in the pelvis, and I reiterated my former diagnosis and insisted that she go to an orthopedist, which she did and was completely relieved with a 1 inch inelastic belt about the pelvis.

Injuries to the pelvic joints during delivery occur but are not within the intended scope of this paper.

The increasing size of the abdomen during pregnancy, like the pendulous abdomen, throws the center of gravity forward, to overcome which the back muscles are put on a strain, and the lumbar curve is increased, thus throwing the upper part of the sacrum forward. This attempt to restore equilibrium, being necessarily continued over a number of months, often results in sacro-iliac or muscular strain.

Every pregnant woman is a potential sacro-iliac patient. This is proved by the known relaxation, the demonstrable mobility in 98 per cent. of cases (Cantin[4]), and the fact that injury occurs more easily during pregnancy than at any other time. Stooping, lifting a child, a misstep, turning over in bed, or even normal movements, as arising from a chair, may precipitate a painful or even disabling condition. In my series of over 500 cases, 10 per cent. suffered enough to complain; and since I have inquired more carefully, I find that more than 20 per cent. acknowledge backache. For these reasons I believe every pregnant woman should wear a proper abdominal, back and pelvic support.

GYNECOLOGY

Retroversion, tumors and inflammatory processes in the pelvis not only cause pain in the pelvis but are so frequently accompanied by backache that this symptom is too commonly looked on as a pathognomonic sign of pelvic disease. It is, however, true that pain in the back directly referable to the sacro-iliac joints is often cured by correction of the gynecologic condition by operation or otherwise; on the other hand, it may work in just the opposite way, and the pelvic symptoms may be entirely due to sacro-iliac inflammation or relaxation, as I have repeatedly shown, by a disappearance of all pelvic tenderness by immobilization of the sacro-iliac joints. One must endeavor, therefore, to determine which is the primary trouble and address the treatment to that, which is not always easy. And again their interdependence is so close that neither seems to be more cause than effect, a true sacro-iliac and a real pelvic pathologic condition coexisting and each making the other worse, acting as it were in a vicious circle, the relief of one benefiting the other, but a cure of the patient resulting only when both are separately attacked.

The point, however, which I wish to emphasize is not the one so commonly recognized that backache is a symptom of pelvic disease, but the converse, that the backache may be an entity in itself; and not only that, but it may by referred sensations even simulate pelvic disease.

As Moore[6] says:

> In these cases all the pelvic organs are tender, presumably due to some intrapelvic condition; they have ovaries and tubes removed, are curetted, tamponed and douched without relief, and gradually drift into a neurasthenic condition of semiinvalidism. All of these cases should be cured or improved by proper treatment.

When one understands the distribution of the sacral plexus and the close proximity of some of the branches, especially the lumbar cord, to the joint, it is not difficult to understand how sacro-iliac disturbances could result in tenderness and pain referred to the pelvic organs.

Case 7.—This case illustrates the type of patient that has pelvic symptoms with no pelvic disease whatever. Mrs. P. came to the office complaining of backache and indefinite pelvic discomfort. She had had the condition ever since the birth of her first baby. She had "doctored for female trouble" for years, and had had tampons and every other conceivable topical application. A pelvic examination revealed a normal condition. The sacro-iliac joint was very tender on palpation. When I told her I could find no female trouble at all she looked very skeptical, if not disgusted, which feeling, however, quickly disappeared after I had strapped her pelvis; for this was one of those spectacular cases in which the patient gets immediate relief. Here was a patient who had been maltreated for years, had spent large sums of money, and endured great suffering, all for the lack of knowledge by her many physicians that backache may be due to something else than pelvic disease, the lack of complete examination and the neglect of well established diagnostic and therapeutic measures. She left the office without pain, wore the straps for a few weeks, never had a return of the pain, and somewhat to my surprise did not need a permanent belt.

Case 8.—This case illustrates two phases of this subject: first, that her symptoms, which she thought pelvic, were in the sarco-iliac joint; and second, that the condition of the joint was due to a remote condition, that is, focal infection. Mrs. L. was the mother of one child, aged 7 years. Several months before consulting her brother, who was a physician, she had noticed backache and more or less pain and heaviness in the pelvis. I was asked to examine her to find out what was the matter in the pelvis. I found nothing abnormal except some tenderness. On account of the pain in the back I examined the sacro-iliac joints, one of which was found quite tender. I thought the whole trouble was in the sacro-iliac joints. The pelvis was strapped with great relief, which, however, was not complete. In further search for the cause, roentgenoscopy revealed the focal infection of the teeth. Rapid improvement followed removal of all the offending teeth.

Young[7] says:

> Impairment of the sacro-iliac joints frequently invites disaster by offering fruitful field for the invasion of infecting processes.

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6. Moore, S. B.: Virginia Med. Semi-Month., March 10, 1911.
7. Young, J. K.: Am. Jour. Med. Sc., 1912, 144, 96.

It is a far cry from pelvis to mouth, but well illustrates where we may be led if we follow our cases through a complete study instead of jumping at conclusions because the patient refers her pains to certain organs.

Much of the backache occurring during menstruation is in the sacro-iliac joints, owing possibly to congestion or relaxation at this time. Sometimes the relaxation is "so marked as to seriously interfere with locomotion." Wearing a sacro-iliac belt during menstruation often gives great relief.

In a series of more than 500 cases, many other reports could be given to prove the one point on which I wish to place emphasis, that backache and even definite pelvic symptoms may be entirely due to lesions in the sacro-iliac joints, or kindred orthopedic conditions.

However, when one is laying stress on a particular condition, one must avoid giving the impression that one believes it to be the sole factor.

I hope I may not fall into the obsession of believing that the sacro-iliac joints are the only cause of backache, even in the sacral region. I ought not, for I have seen many cases with other orthopedic conditions as the cause of this particular symptom, for example, shortening of one leg, flatfoot, lesions in the lumbar sacral joint, spinal curvature, muscle strain due to faulty attitude, and rupture of aponeurotic and muscle fibers.

CASE 9.—This case will illustrate how we may fall into such an error. Mrs. F. had been in a runaway accident fifteen years before I saw her. This was followed by severe backache, which disappeared in a few weeks and did not return until three years before, when she was suddenly taken with a "stitch" in her back when she stooped over to pick up a bottle of water, and could not straighten up. This was diagnosed as sacro-iliac subluxation, and so treated with some relief. I was asked after she had undergone three years of unsuccessful treatment to see if there was anything in the pelvis to account for the condition; examination revealed nothing. As most uncured patients do, she went from physician to physician and from specialist to specialist. Finally a diagnosis of separation of muscular attachments near the sacro-iliac joints was made by a prominent orthopedist, who gave her the greatest relief she had experienced by building up the shoe on the affected side and readjusting her corsets.

It behooves the obstetrician and gynecologist to remember that not all lower backaches, even with pelvic symptoms, are due to pelvic disease; the surgeon should recollect that they do not necessarily mean visceroptosis, dilated large intestine, appendicitis or genito-urinary affections; and the general practitioner, that the neurasthenic may have a real basis for her nervous symptoms in her back itself.

As Dunlop[8] says, the symptoms may be so vague or referred to so many places as to suggest the neurasthenic. He reported one case in which there were pains referable to the pelvic organs, appendix and genito-urinary organs. Even intestinal stasis was considered, and yet the patient was cured of all these by proper immobilization of the pelvic joints.

There is not time in this paper to take up the points of diagnosis. In differential diagnosis and treatment we must work in close conjunction with the orthopedist.

The principles of treatment are simple, calling in the main only for immobilization of the joints by adhesive straps, sacro-iliac belts or special devices, the application of which is described in orthopedic works.

Every pregnant woman, I believe, is a potential sacro-iliac patient. Therefore, I urge that she should be fitted to a specially designed maternity corset, which is a combination of abdominal support, sacro-iliac belt and corset back. It is so constructed as to get well under the abdomen, and really support it; it is provided with straps which may be tightened about the pelvis without constricting the abdomen; it has also a sacral pad, a high steeled corset back which gives the accustomed support to the back, and the whole is designed to correct faulty attitude and take the strain off the back muscles and sacro-iliac joints.

In the simple backaches of pregnancy or gynecology, I first use adhesive straps or the 1 inch inelastic belt for diagnostic purposes and to be worn till the maternity apparatus is fitted and made.

These simple devices usually suffice, but the more extreme cases often tax the skill of even the best trained orthopedists, with whom we must work in the closest conjunction.

The general practitioner can successfully treat most of the cases with adhesive straps, or the 1 inch inelastic belt tightly buckled about the pelvis over the ordinary corset, or by the sacro-iliac belt.

SUMMARY

The sacro-iliac joints are certainly movable during pregnancy, and while usually fixed in the nonpregnant state, may be movable under certain conditions.

This normal relaxation makes these joints very vulnerable; they are often the cause of discomfort, pain, displacement and even disability. Every pregnant woman is a potential sacro-iliac patient and should have her pelvis supported and faulty attitude corrected by a properly adjusted maternity corset.

Gynecologic affections may cause pain in the sacro-iliac region, and sacro-iliac lesions alone may simulate pelvic pathologic conditions; therefore every woman with sacrolumbar backache should have her back examined to make sure whether a pelvic or back trouble is the cause of the symptoms, or whether the two are coequal factors. The treatment of neither can be wisely decided until the exact rôle the other may play has been determined.

119 Institute of Anatomy, University of Minnesota.

ABSTRACT OF DISCUSSION

DR. EDWARD REYNOLDS, Boston: I am confident that the long continued controversy among the orthopedists as to the cause of sacro-iliac backache, to which the essayist refers, is due to the failure of both sides to appreciate that there are several predisposing causes which produce much the same symptomatology, and temporary relief is often obtained from the same mechanical treatment. I think these backaches may be due to (1) actual looseness of the sacro-iliac joints; (2) to inherent skeletal disproportion, causing faulty posture, and (3) to intra-abdominal lesions which cause similar faulty posture. All these lesions create the same secondary disturbance, and, consequently, the same symptoms, since the symptoms are always the result of the secondary lesion, an overstrain and usually a consequent exudate in the lower part of the erector spinae muscles. The case is further complicated by the fact that any two, or sometimes all three, of the same lesions may be present in the same case, but the controversy has become so heated that neither side is ready to admit that the other may be partly right. The cases which the orthopedists see usually belong to one of the two first classes, while those which the gynecologist sees almost always belong to one or both of the two latter classes. The diagnosis between the underlying lesions rests necessarily on physical examination, both gynecologic and orthopedic, and difficult cases often demand consultation, and perhaps conjoint treatment, between experts in the two lines. I am in the most hearty sympathy with the reader's position that backache should be investigated in every case from both points of view, and also that it is not a difficult thing for a gynecologist to learn the orthopedic examination and so fit himself for a differential diagnosis in most cases.

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[8] Dunlop: Virginia Med. Semi-Month., May 12, 1911, p. 66.

Dr. Robert L. Dickinson, *Brooklyn*: I have had the good fortune to have in my office a colleague who has trained me to know the loose joint and the faulty attitude. Like the reader of the paper, I have long practiced strapping and belting the joints and have secured a large amount of comfort from a very slight procedure. Therefore, I think no more important point has been made than that of the necessity of the routine examination of the sacro-iliac joints. The procedure of Goldthwaite, by which the patient lies full weight on the back and the leg is thrown forward with no flexion of the knee, will develop it in most cases. The method of Truslow, with the patient erect and a stethoscope over the joint to detect the sound is also a method of value. Dr. Reynolds also has lent symmetry to the discussion by insisting that we study attitudes both during pregnancy and in the gynecologic patient. The truth lies in neither of these completely. We must correct false attitudes and may thus cure backache, otherwise incurable, with a properly adjusted corset; or a weak back may be strengthened by muscular development.

Dr. Isadore L. Hill, *New York*: I feel that Dr. Litzenberg is to be thanked and congratulated for taking up for study and discussion one of the minor ailments of pregnancy. If any branch of obstetrics at present is neglected it is the study of these minor inconveniences. Although the woman is safeguarded against oversight with reference to her pelvis, which results in the necessity of serious measures at the time of her labor, for the most part women are still accepting the general attitude that pregnancy is an uncomfortable condition of necessity, and I think obstetricians are apt to neglect the smaller matters which it is possible to relieve.

Dr. Jennings C. Litzenberg, *Minneapolis*: I used the expression sacro-iliac and allied orthopedic conditions. That was simply an expression for giving in a sentence what would take a book to cover, and which Dickinson, Reynolds, Lovett and others took several years to work out. Every woman with a backache should have her back examined. This is not done. My sole object in bringing up this question was to emphasize a neglected minor condition, and if you will look at your programs you will see that the last sentence in my paper is a plea for more attention to minor symptoms. It is not, however, from the patient's standpoint a minor symptom. Why do we always emphasize the big thing? The discussion has fully justified me in bringing before you this little question of lower backache. I did not take any time to go into the diagnosis or treatment. Two or three have asked me how I applied these straps. They must be so placed that they are below the anterior superior spines and above the trochanters and applied tightly. This will give the necessary support and relief. We must correct faulty attitudes caused by pendulous abdomens, both in the pregnant and nonpregnant, by the high back corset. If I shall have succeeded in having the backs examined of some of the thousands of women who have backache, I shall be satisfied.

Ophthalmia Neonatorum.—The proportion of pupils blind from ophthalmia neonatorum in thirty-one state schools for the blind in 1916-1917 was, among a total of 2,961 pupils, 742, or 25 per cent. During those years the number of new admissions were 558, 109 of whom, or 19.5 per cent., were blind from ophthalmia neonatorum. Among the pupils in classes for the blind in the public school systems of Chicago, Detroit, Jersey City, Milwaukee, New York City and Racine, Wis., a total of 375 blind, there were 54, or 14.4 per cent., blind from ophthalmia neonatorum. This information has been tabulated in detail by the National Committee for the Prevention of Blindness.

BREATH SOUNDS IN INCIPIENT TUBERCULOSIS *

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Alteration of the respiratory murmur is usually regarded as the initial, or among the initial, physical signs of early tuberculosis. A diversity of opinion exists, however, concerning the incidence of the various respiratory alterations and their relative value in diagnosis. Some authorities agree that the granular type of inspiratory murmur is the initial manifestation of the incipient lesion; others emphasize the prolonged high-pitched expiration as indicating early involvement, while still others attribute only slight significance to either of these changes. This confusion may be ascribed in part to the difficulty in distinguishing true pathologic changes in breath sounds from those variations which occur normally.

The present work was undertaken to determine, if possible, the clinical importance of altered breath sounds in pulmonary tuberculosis with the hope that any knowledge thus obtained might facilitate an early diagnosis. To this end a study has been made of the frequency and character of the respiratory changes in 124 cases of incipient disease confined to one or both apexes, and of the comparative significance of such changes when considered both alone and in conjunction with other physical signs and diagnostic procedures.

Although previous studies include a description of the breath sounds over the entire chest, the observations here recorded are restricted to the apex of the lung (a term herein employed to include that part of the lung above the second intercostal space in front and the spine of the scapula behind). This plan was adopted, because early in the present investigation it was discovered that a detailed study of the breath sounds over the entire chest subjected the patient to an undesirable physical strain. Furthermore, the apexes of the lung are particularly adapted for a study of this kind, since in tuberculosis the initial physical changes occur in these areas in approximately 90 per cent. of all cases. Finally, by confining the study to patients presenting only apical involvement, other conditions, which in themselves might alter the character of the breath sounds at the apex, were excluded and a more accurate idea of the modifications of the vesicular murmur in incipient disease was made possible. Among the conditions thus excluded are tuberculous involvement in parts of the lung other than the apex, spinal curvatures, deformities of the thorax, obstruction of the upper air passages, tumors of the mediastinum, marked deviations of the trachea, etc.

In the present investigation the following method was adopted: The entire chest was first auscultated superficially for the purpose of determining the normal vesicular murmur peculiar to the individual, a requisite for the correct interpretation of pathologic variation in breath sounds. Following this an attempt was made to locate the site of the lesion at the apexes from a study of the respiratory murmur during quiet then during slightly exaggerated, and finally, forcible breathing, the patient breathing orally and noiselessly and maintaining as far as possible the normal ratio between inspiration and expiration. These findings were then compared with the results of a complete physical examination, including the use of the roentgen ray and the fluoroscope. By studying the breath sounds before the other physical signs were elicited, and without knowledge of the roentgen ray and fluoroscopic findings, the examiner was uninfluenced by facts that might tend to color his interpretation of alterations in the respiratory murmur. Previous work had suggested the advisability of this plan.

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* From the New York State Hospital for Incipient Pulmonary Tuberculosis.

Certain observations in physical diagnosis made by me in the course of previous work have been applied to the present study because of their aid in determining more precisely the value of respiratory alterations in tuberculosis. The application of these principles in this study helps to explain the discrepancies that exist between the present findings and those of previous observers.

These observations are as follows:

1. The employment of diaphragmatic breathing is an effective measure in differentiating granular breathing from those extrapulmonary sounds which simulate this type of breathing.

2. The observation of the time interval and force of the respiratory act is essential for the accurate differentiation of physiologic alterations in the duration and intensity of the respiratory murmur from those of pathologic origin.

TABLE 1.—FORTY-SEVEN CASES OF INCIPIENT TUBERCULOSIS PRESENTING A LESION AT THE RIGHT APEX

Granular breathing	1
Weakened breathing	5
Increased vesicular	3
Cog-wheel	..
Prolonged expiration	20
Bronchovesicular	6
No change in respiratory murmur	12
Total	47
Breath sound changes at the normal left apex	8
Weakened breathing	2
Increased vesicular	4
Prolonged expiration	1
Bronchovesicular	1

3. The lungs glide beneath the ribs during respiration is important in correlating pathologic conditions any given area is considerably greater than that represented by the bell of the stethoscope. This observation is important in correlating pathologic conditions with alterations in the respiratory murmur.

The present study comprises 124 cases classified as incipient according to the classification adopted by the National Association for the Study and Prevention of Tuberculosis. Tubercle bacilli were demonstrated in the sputum of approximately 24 per cent. of the cases. A comparison of the breath sound changes in the sputum-positive and sputum-negative cases failed to reveal any distinct differences, and for this reason they have been grouped together in the accompanying tables.

In eighty-one instances the lesions were unilateral, occurring at the right apex in forty-seven, and at the left apex in thirty-four. In the remaining forty-three cases the lesions were bilateral, slightly more extensive at the right in twenty-six, and at the left in seventeen.

The results of the study of the breath sounds in the 124 cases with apical involvement are presented in the tables. In those cases exhibiting more than one alteration in the vesicular murmur over an apex, only the most marked alteration has been noted.

Of the forty-seven cases of early disease with a lesion at the right apex, thirty-five, or 74.4 per cent., presented respiratory alterations, while twelve, or 25.6 per cent., gave no evidence of respiratory change. In eight instances the character of the breath sounds at the left apex suggested a lesion in this area, although further physical examination, the roentgen ray and the fluoroscope did not confirm this suspicion. Among the thirty-five cases exhibiting respiratory alterations, the inspiratory murmur was most affected in nine instances, the expiratory in twenty, and in the remaining six instances, the inspiratory and the expiratory murmur were about equally affected. In other words, in disease at the right apex, the expiratory murmur is altered more frequently than the inspiratory.

TABLE 2.—THIRTY-FOUR CASES OF INCIPIENT TUBERCULOSIS PRESENTING A LESION AT THE LEFT APEX

Granular breathing	1
Weakened breathing	10
Increased vesicular	6
Cog-wheel	1
Prolonged expiration	4
Bronchovesicular	2
No change in respiratory murmur	10
Total	34
Breath sound changes at the normal right apex	9
Weakened breathing	2
Increased vesicular	1
Prolonged expiration	4
Bronchovesicular	2

Of thirty-four cases of early involvement at the left apex, the findings were positive in twenty-four instances, or 70 per cent., and negative in ten instances, or 30 per cent. Respiratory changes suggesting a lesion at the normal right apex were noted in nine instances. Among the twenty-four positive cases exhibiting respiratory alterations, the inspiratory murmur was affected in eighteen instances, the expiratory in four instances, and in the remaining two instances both were equally affected. The respiratory variations at the left apex in contrast to those at the right are predominantly inspiratory in character.

In the forty-three cases in which the disease was bilateral, changes in the breath sounds suggested the presence of a lesion at both apexes in nine, at the right apex alone in fourteen, at the left apex alone in eleven, and in the remaining nine no changes in the breath sound were noted.

An analysis of the respiratory variations in forty-three cases presenting bilateral apical disease shows, as in those with unilateral involvement, that at the right apex the expiratory, and at the left apex, the inspiratory murmur is most frequently altered. In approximately 50 per cent. of the cases in this group, no respiratory alterations were detected, a fact explained largely by the absence of a normal standard for purposes of comparison.

TABLE 3.—FORTY-THREE CASES OF INCIPIENT TUBERCULOSIS PRESENTING A BILATERAL APICAL LESION

	Right Apex	Left Apex
Granular breathing	1	0
Weakened breathing	3	5
Increased vesicular	2	8
Cog-wheel	1	1
Prolonged expiration	12	4
Bronchovesicular	4	2
No change in respiratory murmur	20	23
Total	43	43

The results of the present study do not agree in certain essentials with those of previous observers, notably in the large proportion of cases (approximately 40 per cent.) in which the findings resulted negatively, and also in the difference in the incidence of the various respiratory modifications as observed at the right and the left apex.

COMMENT

Granular Breathing.—Granular breathing, or one type of the *rauhes Atmen* (rough breathing) of the Germans, is regarded by most observers as one of the earliest respiratory alterations in tuberculosis (Grancher, Minor, Turban, Sahli, Otis, Pottenger and Fishberg). For the satisfactory demonstration of granular breathing at the apex, the muscles in this region must be in a state of relaxation, because their active contraction may at times produce sounds indistinguishable from granular breathing, and thus lead to confusion in diagnosis. This requisite is obtained by means of abdominal breathing. In this type of breathing, respiration is conducted solely by the piston-like excursions of the diaphragm, the thorax is fixed, and the muscles in the region of the apex are relaxed.

Abdominal breathing, therefore, represents an efficient method for the elimination of those extrapulmonary sounds which arise in the contracting muscles and which simulate granular breathing. On the other hand, if the granular type of respiratory murmur is heard during abdominal breathing, one is justified in concluding that the vesicular murmur has undergone a definite pathologic alteration.

The value of abdominal respiration in the detection of granular breathing is illustrated by the fact that in a series of cases previous to its employment, the incidence of this sign in early tuberculosis was about 18 per cent., while subsequent to its use only three cases in the present series, or 2.81 per cent., exhibited this sign.

Changes in the Duration and Intensity of the Respiratory Murmur.—Since physiologic variations in the duration and intensity of the vesicular murmur may be confused with those of pathologic origin, a knowledge of the factors responsible for such variations in health is essential for the correct interpretation of their occurence in disease. When the volume of air inspired in a given unit of time is maintained, the intensity of the murmur remains unaltered. Thus, if on successive respirations the air intake is 500, 1,000 and 1,500 c.c., and the time interval occupied by the respiratory act is one, two and three seconds, respectively, no change occurs in the intensity of the respiratory murmur, since the air intake in a given unit of time (500 c.c. in one second) is the same in each instance. The depth of the respiration, however, is altered, as is the duration of the respiratory murmur. The view expressed by certain observers, among others Sahli[1] and Barker,[2] that intensity varies with the depth of respiration, is therefore open to question. Variations in the intensity of the respiratory murmur are due to differences in the volume of air intake in a given unit of time. The greater the volume the more intense the murmur, and vice versa. In other words, the duration of the vesicular murmur, more especially the inspiratory phase, depends on the time interval occupied by the respiratory act, the intensity on the force of the respiratory act. Variations in the force of the respiratory act may also alter the character of the respiratory murmur in the region of the apexes, a fact that increases the difficulties of diagnosis.

Normal variations in the duration and intensity of the vesicular murmur may be determined by observing the movements of the chest and abdomen and noting the time interval and force of the respiratory act. The detection of such physiologic variations is essential for the correct interpretation of similar alterations occurring with pathologic conditions.

As the movements of the chest during respiration are greater in front than behind, the examiner will find it advantageous to select the front of the chest when making such observations. By the adoption of this procedure, variations in the duration and intensity of the respiratory murmur have been reduced approximately 20 per cent. as compared with those obtained during a previous study of this sign.

In the present study the vesicular murmur was either weak or intensified, with corresponding changes in its duration in sixteen of the ninety instances of disease at the right apex, and in thirty-two of the seventy-seven instances of disease at the left apex.

Prolonged Expiration.—Prolonged expiration, first advanced by Jackson of Boston in 1833 as a sign of tuberculosis, is generally regarded as one of the first alterations in the respiratory murmur to appear in early tuberculosis. In ninety instances of disease at the right apex, prolonged expiration was the most frequent sign, occurring in thirty-two instances, or approximtaely 35 per cent.; while in seventy-seven instances of disease at the left apex, this sign was present in only eight instances, or approximately 10 per cent. At the left apex the changes in the expiratory murmur, as compared with those at the right apex, were not marked.

Physiologic prolonged expiration is invariably more marked at the right apex, and in some instances may be entirely confined to this region. According to Bandelier and Roepke,[3] it occurs at the right apex in 33 per cent. of healthy adults. The relative frequency and more pronounced character of physiologic prolonged expiration at the right apex and the inability on my part to differentiate with accuracy such alterations in the respiratory murmur from those of pathologic origin explain, in part at least, the high incidence of this sign at the right apex.

Prolonged expiration more marked at the left than at the right apex, on the other hand, forms one of the most trustworthy physical signs associated with disease at the left apex. Infrequent in early disease, its incidence increases with the advance of the disease.

In thirty-one instances of moderately advanced disease in which expiration was more pronounced at the left than at the right apex, the left apex exhibited a definite lesion in thirty instances, while in only one case was no evidence of a lesion demonstrable.

Bronchovesicular Breathing. — Bronchovesicular breathing occurred in ten of the ninety instances of disease at the right apex, and in four of the seventy-seven instances of disease at the left apex. Bronchovesicular breathing and prolonged expiration, because of their close similarity to each other, are frequently confused. In their differentiation the personal equation is an important factor. This point should be borne in mind in studying the present statistics.

For the correct interpretation of breath sound change, a knowledge of the movements of the thorax and lungs during respiration is important. It is generally assumed that no change occurs in the position of the auscultated field during respiration. For instance, the pathologic basis for one type of bronchovesicular breathing is explained by Turban as due to superficial aerated lung tissue overlying an area of partial or complete consolidation. The air current first impinging on the consolidated tissue gives rise to the bronchial quality, and later the expansion of the superficial air-containing lung produces the vesicular quality.

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[1] Sahli: Klinische Untersuchungsmethoden, Ed. 5, 1908, p. 296.

[2] Barker: Monographic Medicine, 2, 518.

[3] Bandelier and Roepke: Die Klinik der Tuberkulose, Ed. 3, 1914, p. 69.

This explanation of bronchovesicular breathing presupposes that the lung is more or less a fixed and immobile organ, a view in accord with current ideas. That the contrary is true, however, and that the lung exhibits considerable movement on respiration, may be illustrated by the following procedure: If the bell of the stethoscope is placed over the lower margin of the lung and the patient directed to take a deep inspiration, at the height of inspiration the lower margin of the lung is no longer beneath the bell of the stethoscope, but may be 2 inches or more below it, depending on the fulness of inspiration. In other words, the lung glides beneath the stethoscope during respiration, and the area of lung auscultated over a given point in the thorax is therefore considerably larger than that represented by the bell of the stethoscope. The area of lung auscultated varies also with the type of respiration. This is illustrated by observing the movement of an isolated shadow in the lung by the aid of the fluoroscope and noting the difference in the position of the shadow with relation to the neighboring rib during thoracic and abdominal breathing. Clinically this change in the lung movement is shown by the striking variation that may occur in the size of the râle area in certain cases on abdominal and thoracic breathing. With the fact in mind that the lung glides beneath the ribs, bronchovesicular breathing may be explained by the presence of contiguous areas of consolidated and air-containing lung, which alternately pass across the auscultated field during respiration.

Furthermore, in the interpretation of the respiratory modifications other than bronchovesicular, and in those studies conducted for the purpose of correlating the physical signs and the roentgen-ray findings with those discovered at necropsy, the relative movements of the chest wall and the lung require consideration.

A striking feature of the data presented is the relatively large number of negative findings. Of the ninety instances with involvement at the right apex, the examinations were positive in fifty-eight and negative in thirty-two, while at the left apex in seventy-seven instances, the findings were positive in forty-four and negative in thirty-three. Among the cases presenting respiratory alterations, in many instances the variations deviated so slightly from the normal that the sign could be termed indefinite and merely suggestive. Of the eighty-one instances of unilateral disease, alterations of the respiratory murmur over the healthy apex occurred in seventeen, or 21 per cent.

The selection of the apexes for the present study and the difficulty encountered in this region in differentiating physiologic from pathologic changes in the breath sounds may explain the reason for the comparatively large number of cases in which the study of the breath sounds alone failed to prove of diagnostic value.

Finally, the present study indicates that expiratory alterations predominate at the right apex, while at the left apex the inspiratory murmur is most frequently affected, an observation which, if verified, would afford a reasonable explanation why certain observers have emphasized expiratory and others inspiratory alterations in the respiratory murmur in early diagnosis.

CONCLUSIONS

1. Abdominal breathing is an effective method for the differentiation of granular breathing from those extrapulmonary sounds simulating this type of breathing.
2. The observation of the time interval and force of the respiratory act is essential in the differentiation of physiologic from pathologic alterations in the duration and intensity of the respiratory murmur.
3. The lung glides across the auscultated field during respiration.
4. Variations in the force of the respiratory act may alter the character of the respiratory murmur in the region of the apexes.
5. Expiratory alterations predominate at the right apex, inspiratory at the left apex.
6. Prolonged expiration, when more pronounced at the left than at the right apex, is a reliable sign of disease at the left apex.
7. Bronchovesicular breathing may be explained by contiguous areas of consolidated and aerated lung that alternately glide beneath the stethoscope during respiration.
8. The frequency with which alterations in the respiratory murmur occur over the healthy apex in unilateral disease deserves attention.
9. Physiologic respiratory modifications interpreted as pathologic represent the most frequent error in the physical examination in early tuberculosis.
10. A study of the breath sounds in early disease is often difficult and misleading, and for this reason should not be unduly emphasized in diagnosis.

CERTAIN FACTORS IN THE ETIOLOGY OF GALLSTONES

ON THE BASIS OF THEIR CHEMICAL COMPOSITION

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The fundamental work of Aschoff and Bacmeister[1] has shown that gallstones are to be classified, as regards their chemical composition, into the following groups:

1. Pure cholesterol stones.
2. Stratified cholesterol-calcium stones.
3. Cholesterol-pigment-calcium stones.
4. Composite stones, composed of cholesterol and a mantle of cholesterol and calcium.
5. Bilirubin-calcium stones, usually found in the bile passages of the liver.
6. The very rare calcium carbonate stones.

The studies of Rothschild[2] and of Henes[3] have drawn attention to the possible importance of states of hypercholesterolemia in relation to the formation of the chelesterol gallstones.

These studies, together with those of Aschoff,[4] and of Chauffard,[5] and others of the French school,[6] have produced a reaction against the former explanation of Naunyn[7] as to the pathogenesis of gallstones. Naunyn concluded that the cholesterol of the bile is *neither a product of general metabolism nor a specific secretion product of the liver*, and that the chief source of the cholesterol in gallstone formation was from the degenerated and desquamated epithelial cells of the gallbladder and bile tracts. Aschoff and the French observers, however, finding no abundance of cholesterol in the wall of the gallbladder, do not accept this origin.

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[1] Aschoff and Bacmeister: Die Cholelithiasis, Jena, 1909; Beitrag z. path. Anat. u. z. allg. Path. (Ziegler's), 1908, **44**, 528.

[2] Rothschild: Beitr. z. path. Anat. u. z. allg. Path., 1914, **60**, 66; 1915, **60**, 227. Aoyama: Deutsch. Ztschr. f. Chir., 1914, **132**, 234. De Langen: Presse méd., 1916, **24**, 332.

[3] Henes: Deutsch. Arch. f. klin. Med., 1913, **3**, 122; The Value of the Determination of the Cholesterin Content of the Blood in the Diagnosis of Cholelithiasis, THE JOURNAL A. M. A., July 11, 1914, p. 146; Surg., Gynec. and Obst., 1916, p. 91.

[4] Aschoff: München. med. Wchnschr., 1906, **53**, 1847; 1913, **60**, 1753.

They believe that in the formation of gallstones the first step is the formation of a pure cholesterol stone without an inflammatory cause, owing to an actual increased excretion of cholesterol by the liver, or an excess of cholesterol in the blood, or because of resorption of solvent substances from stagnating bile. These primary cholesterol stones then produce an inflammation and occlusion, leading to the formation of the common mixed stones.

Rovsing[8] has also shown that Naunyn's conclusions cannot be accepted. He asserts that recent research seems to have established that, just as the urine becomes abnormally concentrated during the course of a febrile disease, the bile is liable to become less fluid. In the inspissated bile, precipitation is liable to occur and the elements thus thrown down may agglomerate into concrements. Among the facts on which he bases this assertion are the results of Boysen's chemical study of the gallstones found in 200 cadavers with cholelithiasis. The young, freshly deposited gallstones, and likewise the nucleus of all other kinds of biliary concrements, he found consisted of bile pigment and calcium, "pigmentkalk," as he calls it. Other elements of the bile are precipitated on this nucleus or are drawn in by osmosis, especially cholesterol. The conditions during pregnancy and during a febrile disease are liable to favor this inspissation. The concrements resulting from it are all of about the same age, confirming the transient nature of the cause producing them and explaining why new ones do not develop after the crop has been removed. Boysen found invariably that the gallbladder was sound when the gallstones were of the small, primary bile-pigment calcium type.

A still more conclusive argument in favor of this assumption of the origin of gallstones is that systematic bacteriologic study of the gallbladders removed in 320 cases at Rovsing's clinic between 1899 and 1914 showed that the organ was entirely sterile in fully 54 per cent., without a trace of infectious processes. The proportion in aseptic cases showing the different types of gallstones ranged from 52.7 per cent. of fifty-five cases in which a single large stone was found, to 77 per cent. of twenty-seven cases presenting the small mulberry-shaped stones. These findings demolish entirely Naunyn's theory that gallstones are deposited in consequence of an infectious process. Other data cited also disprove this, especially the fact that the symptoms of cholecystitis always follow, never precede, the gallstone formation. When the pigment and calcium are precipitated from abnormally thick bile, the resulting concrements may or may not irritate the gallbladder and ducts enough to set up inflammation. Rovsing reviews all the theories proposed concerning the pathogenesis of gallstones and shows the fallacies of each, while he expatiates on the way in which all the phenomena connected with cholelithiasis are logically explained by precipitation as the result of thickening of the bile under some temporary condition inducing transient inspissation.

ANALYSIS OF GALLSTONES REMOVED BY OPERATION

Case No.	Weight of Stones, Gm.	Water Per Cent.	Calcium Oxid Per Cent.	Cholesterol Per Cent.	Nitrogen Per Cent.	Remarks
1.	4.4697	4.7	0	61.2	0	No infection
2.	0.5980	5.7	90.2	trace	0.16	Typhoid
3.	0.4345	2.5	78.1	0	0.24	Typhoid
4.	3.7730	8.3	90.3	trace	0.17	Typhoid
5.	14.5028	30.8	0	64.2	0	No infection
6.	4.2196	17.7	72.6	5.4	0.10	Septicemia
7.	0.3002	47.4	34.1	0	0	Typhoid
8.	1.2305	3.9	7.6	80.2	0.05	No infection
9.	17.6280	5.2	0	93.8	0	No infection
10.	2.7400	4.1	0	89.2	0.02	No infection
11.	1.2646	1.9	35.2	trace	0.06	Pneumonia
12.	0.2670	0.5	30.4	0	0.18	Paratyphoid
13.	2.3230	0.8	0	93.8	0	No infection
14.	0.7996	5.0	78.2	trace	0.14	Typhoid

This paper contains the results of analysis of the stones removed by operation in fourteen cases of diagnosed cholelithiasis. A careful history as to previous infectious disease was taken. The cholesterol was estimated by the method of Windaus.[9] The calcium was estimated by McCrudden's[10] method after ashing and extracting the ash with hydrochloric acid.

It may be seen from the accompanying table that in every case with a previous history of an infection the gallstones were chemically composed of calcium salts, while in those cases without a previous history of infection the gallstones were composed of cholesterol.

Mignot[11] and also Rosenow[12] have shown the relation of infection to the formation of gallstones. Rosenow found an almost complete absence of bacteria in four pure cholesterol stones, which seems to bear out the data contained in this paper, showing that the cholesterol gallstones are possibly not due to a previous infection. Churchman[13] has reported a case of acute typhoid cholecystitis with large amounts of calcium soap in the gallbladder, which also seems to show that the calcium stones are more apt to be due to an infectious process.

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[5] Chauffard: Leçons sur la lithiase biliaire, Paris, 1914.

[6] Grigaut: *Le cycle de la chloesterinemie*, Paris, 1913. Laroche and Flandin: Compt. rend. Soc. de *biol.*, 1912, **72**, 660.

[7] Naunyn: Cholelithiasis, 1896, München. med. Wchnschr., 1898, **45**, 1293.

[8] Rovsing: Hospitalstid., 1915, **8**, 249.

[9] Windaus: Ber. d. deutsch. chem. Gesellsch., *1909*, **42**, 238; Ztschr. f. physiol. Chem., 1910, **65**, 110.

[10] McCrudden: Jour. Biol. Chem., *1911*, **10**, *187*.

[11] Mignot: Arch. gén. de méd., 1898, **2**, *129*; *263*.

[12] Rosenow, E. C.: Bacteriology of Cholecystitis and Its Production by Injection of Streptococci, The Journal A. M. A., *Nov. 21, 1914*, p. 1835; Jour. Infect. Dis., 1916, **19**, 527-556.

[13] Churchman: Johns Hopkins Hosp. *Bull.*, *1911*, **22**, 223.

THE REDUCTION OF GASTRIC ACIDITY

PRELIMINARY ACCOUNT OF METHODS

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It is generally admitted that the hydrochloric acid of the stomach comes from the sodium chlorid of the blood and that the body gets its chlorids from food and common salt. To do away with hyperacidity or hypersecretion what means is more logical and direct than to shut off the food supply of chlorids? Clinicians often take a first step toward this when they tell their patients with ulcer to avoid the use of salt. About six months ago my attention was drawn to the question when a patient returning to the use of salt had a marked increase of acid.

Dogs have been given food deprived of salts, and in most cases the gastric juice has fallen off in strength or amount. The work of Cahn, Wohlgemuth, Pawlow, Dastre and Frouin is convincing in this connection, although Pugliesse writes to the contrary. Usually the animal did not thrive on the diet poor in salt. One writer (Forster) who had fed his animals on food of this sort announced that they died more quickly than if they had been utterly starved! These findings made a profound impression: the absence of salt was blamed for the speedy death. Although the chemist Bunge protested that the death was due not to lack of sodium chlorid but to certain other deficiencies of the diet, and although one of his associates, Luinin, actually added this salt to the same diet and found that the animals still could not live on it, the impression remained current that experiments had conclusively shown that a diet quite lacking in sodium chlorid brings early death.

It may be admitted that food without inorganic salts will not keep up life. In treating hyperacidity we do not demand an absence of all inorganic salts, or even of the element sodium; we demand the absence only of chlorin. When the salts containing chlorin are removed from food, other inorganic salts also are removed; but later these other salts may be returned to the food, and the difficulty thereby obviated. So far as I know, no one has attempted to prepare a diet, well balanced and unobjectionable save that it lacked the single element chlorin, to discover whether the organism could get along on this diet and whether it would reduce the gastric acidity. Perhaps we should still find that "a very far going deprivation of chlorin may lead to general disturbances—which vanish after subcutaneous or rectal injections of large quantities of physiological salt solution," as Strauss warns. This is worth testing again. Even if untoward symptoms should arise and prove that the removal of chlorids can be carried too far, it is conceivable that a limit might be found at which favorable clinical results are achieved but beyond which one should not go.

Any diet used for the purposes in question must not be lacking in those elements essential to life sometimes called "vitamins." Early workers apparently did not know this. Luinin, as has been stated, deprived food of mineral constituents and found that his animals could not live on it even after sodium chlorid had been added; and so he went farther, restored the other inorganic salts, but still found that the animals could not live on the diet, although they did not die so early. However, the animals got along on milk alone. This point puzzled Bunge. "It is a noteworthy fact," he says, "that although animals can live on milk alone, yet if the constituents of milk which according to the present teaching of physiology are necessary for the maintenance of the organism are mixed together, the animals rapidly die." Today we might reply to this riddle that the constituents of the milk used failed to include vitamins—elements present in whole milk and essential to life. From all of this we learn to use diets well balanced in protein, fat and carbohydrate, lacking not in vitamins or inorganic salts or sodium, but only in chlorin.

Obviously there is need of more tests on man. Vincent announced in 1904 that a number of his patients with hyperchlorhydria had obtained real benefit from a diet poor in salts, and he did experiments to prove the point. Laufer confirmed his results, and more recently Enriquez and Ambard have published observations and warmly recommend this treatment for hyperacidity under certain indications. On the other hand, Leo gets discouraging results, while the experience of H. Strauss makes him very pessimistic. The latter warns that even after a prolonged salt-free diet — when the urine no longer has more than a trace of chlorids — the tissues persist in holding on to a supply of chlorin, which they furnish to the gastric glands, so that secretion of acid continues.

Here is a real difficulty. But perhaps it has been exaggerated. New methods may make this clear. Aspirations made every half hour or so for a period of hours will tell us about the total amount and strength of secretion for this time; we can compare the results obtained in this way before and after the chlorin-free diet. The curve of secretion thus obtained might show a lessening of secretion caused by the diet which would not be revealed by the older method of testing with a single daily aspiration. Furthermore, we can take special steps to meet the difficulty. Linoissier early pointed out that the favorable results with dogs were aided by drawing off the juice, thus ridding the system of chlorin. In man the gastric juice is conserved and resorbed in the intestine, and the same dose of salt can be used again indefinitely for the secretion of gastric juice. We must seek to promote elimination of chlorids by giving plenty of potassium salts (Bunge), avoiding the use of sodium bicarbonate, which decreases elimination (Goldberg and Hertz), by frequent aspiration, and by giving plenty of water (Rulon and Hawk). But if excess of water increases the gastric secretion, as they suppose, it may prove better to restrict the use of fluids.

The method of attack, then, is to use a diet well balanced save for lack of chlorin. The foodstuffs should be either naturally poor in this element or freed of it by boiling. To season his food the patient is given a special inorganic salt mixture of about the same proportions as found in milk by Bosworth and Van Slyke, except that calcium lactate is substituted for calcium chlorid. As these salts are also acceptable to patients with nephritis who are on a salt-free diet as seasoning in place of common salt, the following formula is given:

	Gm.	
Dicalcium phosphate	5	8
Monomagnesium phosphate	3	4
Dipotassium phosphate	7	7
Potassium citrate	1	7
Sodium citrate	7	4
Calcium lactate	4	

Mix and pulverize.

Important articles are fresh meat, potatoes, oatmeal, carrots and cauliflower, cut fine and then boiled for hours with several changes of the water; stewed apples, prunes and apricots; very weak tea and coffee; butter freed from salt by washing fine particles thoroughly in running water; one egg and about 50 c.c. of milk or cream per day, but no more. Distilled water is used for drinking, but if need be, tap water may be used for cooking if the chlorin content is low, as in Chicago.

Choice among the foregoing articles of course will vary with the nature of the disorder, the complications and the stage of treatment. Solid food may be hashed or mashed before serving. In some cases it might be well to begin with a period of starvation, following with the special diet; and later during convalescence the amount of milk and cream might be increased.

A sample diet for a day might be as follows: (The amounts of each article readily can be arranged to meet the caloric requirements of the individual.)

Breakfast.—Oatmeal gruel with sugar and a little cream; apple sauce; very weak coffee with sugar and cream.

Dinner.—Fresh meat, boiled and hashed; potatoes, boiled and mashed; carrots likewise; special salt-free butter; orange juice diluted and sweetened.

Supper.—One egg, raw, boiled or poached; boiled rice; purée of prunes; very weak tea with sugar and cream.

It is apparent that for gastric ulcer additional treatment may be needed, such as rest in bed, aspiration, and the administration of bismuth and alkalies, including calcined magnesia; but potassium bicarbonate will take the place of the sodium salt if it is sought to increase the excretion of sodium chlorid.

For the test meal either the Ewald or, better, several hundred c.c. of sugar solution, weak tea, or plain water may be given. The acidities are determined by titration, and the chlorids in the juice and daily urine are estimated by the McLean and Van Slyke method.

This preliminary account of work which has been under way since about May 1 is published in the hope that these principles and methods may interest others. The so-called "salt-free" nephritic diets of hospitals as a rule cannot be adapted for treating hyperacidity under this principle. A sample of "salt-free" bread from one hospital was found to contain a relatively high percentage of sodium chlorid. According to results with dogs, it is anticipated that about ten days or more of dieting may be required before a reduction of gastric acidity may begin to appear.

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Comparison of Salvarsan and Japanese Salvarsan Substitutes.—In Japan various substitutes for salvarsan and neosalvarsan have been placed on the market under such names as arsaminol, sodium arsaminol, ehramisol, neoehramisol, tanvarsan, neotanvarsan and arsemin. These Japanese preparations were tested pharmacologically on rats and dogs, and also compared with control experiments, using Ehrlich's old salvarsan. Clinical tests were also made in syphilitic cases. The workers, K. Dohi, H. Nakano and T. Kambayashi (Japanese Medical Literature, 1917, **2**, Part 2, p. 9, through Chemical Abstracts, Nov. 10, 1917, p. 2934) state that: "The toxicity of all preparations was noticeably less than the German one, although the possibility is allowed that the latter may have changed somewhat with age. The Japanese preparations seemed to have fully as much value as the original and yet lacked much of the reaction that usually accompanies the injections of the latter."

INTESTINAL OBSTRUCTION, COMPLETE AND INCOMPLETE *

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A complete obstruction of the bowel near to the stomach usually causes death in man and in the lower animals in less than 100 hours. A similar obstruction in the aboral portion of the intestine may not cause death for a week. An incomplete obstruction at any point in the intestine causes symptoms that differ from the complete form only in degree. Problems connected with obstruction are among the most interesting and important in medicine. What is the toxic agent which, with tachycardia and convulsions, but without elevation of temperature, destroys life so speedily in duodenal obstruction, leaving no discoverable trace at necropsy? Is it a product of bacterial infection, or is it due to perversion of the great glandular system of the alimentary canal? Is it analagous to the death caused by the removal of the parathyroid or other glands? Does the mere blocking of the intestine in this, biochemically the most active portion of the canal, amount to an actual severance of an interglandular relationship that is not compensated for through the blood vessels or other channels, an ancient and potent interaction that is necessary to the maintenance of life and for the continuance of which an open intestine is necessary? Why is it that the nonprotein nitrogen and other components of the blood increase enormously after duodenal obstruction, while no such change is noted in ordinary bacterial infection? Is a proteose similar to that described and isolated by Whipple the cause of death, or is the toxic substance, like prosecretin, of so delicate, evanescent and unstable a character as to defy detection by test tube analysis? If so, is not this an example of the truth of Haldane's recent assertion that we are emerging physiologically from a materialistic to a vitalistic basis of research? What is constipation if not a protective symptom analogous to abdominal rigidity which seeks to give surgical rest when and where needed? What relationship, if any, can be shown to exist between the well known chronic symptoms of intestinal toxemia and the little known but much dreaded symptoms of duodenojejunal obstruction? Why do certain of these chronic toxemics improve when the diseased and often pigmented cecocolon is removed? Is it possible to find any efficient medical treatment until some of the foregoing questions are answered? If surgical, is a given case to undergo resection or some form of anastomosis? What is to be expected of the different forms of anastomoses that produce partial exclusion? May there be recognizable hereditary structural changes predisposing to the occurrence of such chronic subobstruction as one often sees clinically in the chronic intestinal invalid? If so, may one utilize some such type of classification as that of Bryant—herbivores, carnivores and neutrals to aid in the diagnosis and care of these cases?

These are some of the engrossing problems which confront the student of atypical conditions in the alimentary canal. Some of them are answerable. Many are still open to free discussion. Of the remainder we frankly know little or nothing. It is axiomatic, however, that no treatment, either medical or surgical, can be of real value unless it is based on a greater knowledge than we at present possess. Researches, therefore, into the physiologic pathology of the alimentary canal are evidently of the utmost importance.

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* Read before the Section on Gastro-Enterology and Proctology at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

Turning to a brief consideration of these questions, I may state that in a paper published eleven years ago from the Laboratory of Experimental Surgery at Columbia,[1] I related a series of experiments made during the previous years as a result of which we had concluded that neither shock nor the absorption of food products nor bacterial infection had anything whatever to do with death in duodenal obstruction. I found that by placing a triangular ligature between the stomach and the small intestine just aboral to the point of total obstruction, this ligature would produce drainage in about seventy-two hours, and that there was a very constant line, which I referred to as the lethal line of the duodenum, oral to which obstructions were fatal under the conditions indicated, but harmless if made aboral to it. From this, and from the fact that necropsies, most carefully and repeatedly made, failed to demonstrate any lesion whatsoever save capillary dilatation of the terminal colon and occasionally of the stomach and liver, I "determined that death was due to some more subtle factor than those considered . . . that there might be a relation between this form of intoxication, if such it be, in dogs, and the so-called tetany of human beings; that the question seemed to have resolved itself now into a determination as to whether death is due to an intoxication resulting from a disturbance of the balance of the secretions which pour so plentifully into the intestine in this particular region; . . . whether secretion or other secretions from the duodenum itself had anything to do with the cause of death."

In a paper published one year later,[2] quoting Wilms, I noted that death from duodenal obstruction subvenes with extreme rapidity, and that up to that date all patients were believed to succumb to toxic absorption, resulting from the decomposition of intestinal and stomach contents. Starvation and lack of absorption of water, which in those early days had already been thought by some to be a factor and which have latterly been brought into great prominence, notably by the valuable researches of Hartwell and Hoguet, were looked on as "hardly to be considered when one reflects that absorption of water takes place almost entirely in the colon, and can therefore not be materially influenced by the position of the obstruction in the small gut." Observations that we have made show conclusively that putrefaction has nothing whatsoever to do with the cause of death in intestinal obstruction.

In 1914, in a paper[3] based on researches made in the Surgical Research Laboratories of the Mayo Clinic and New York University, I concluded with Schultz that the power of the liver to pair camphor and glycuronic acid is impaired after duodenal obstruction. This is presumably an evidence of impaired liver function. It is, however, not reflected in the histologic appearance either grossly or microscopically.

The decrease in the water-content of the tissues in duodenal obstruction is about the same as obtains after salivation by pilocarpin for four days or after fasting for seven. As this decrease produced no visible change in either case before euthanasia, it is reasonable to believe that it produces none in intestinal obstruction. The loss is 10 per cent. The duodenal obstruction (death) undoubtedly arises from an interference with cellular reactions of the intestinal epithelium. The resulting toxins undoubtedly are at least in part eliminated from the stomach and colon.

I reported also the increase of nonprotein nitrogen in duodenal obstruction, concluding that all recent studies "point to aberrant activity of the duodenal and probably pancreatic cells; that the old hypothesis that the toxin is of bacterial or food decomposition origin may be discarded; that dehydration is of no greater importance in this than in other toxemias; that there is an important ratio between the toxicity of the intestinal epithelium and its digestive power; that the intricate syndrome autotoxemia in man will be better understood when we know the cause of death in duodenally obstructed dogs."

Through the courtesy of Professor Gettler of the department of chemistry, New York University, I am now able to report further studies in the chemical picture of the blood in duodenal obstruction in dogs, and to contrast it with his well known studies along this line in human intestinal toxemias and in infections. Thus a great deal of evidence has accumulated in the past fifteen years pointing to the accuracy of my hypothesis that death in duodenojejunal obstruction is not due to any form of bacterial action whatsoever, or to toxins derived from the food, but to a disturbance of the hormone or enzyme producing activities of the intestinal epithelium and the consequent production of toxic bodies that cannot be isolated by ordinary chemical analysis—in other words, that death is caused by conditions analogous to those induced by removal of the parathyroids or other glands. If this is true, and if my failure to corroborate Whipple's efforts to prove that a proteose is the cause of death is not due to inaccuracies, then the evidence points more than ever to the gland perversion or inhibition theory already referred to.

CHEMICAL BLOOD PICTURE IN COMPLETE DUODENAL OBSTRUCTION *

	Before Operation Per Cent.	Hours After Operation			
		24 Per Cent.	48 Per Cent.	72 Per Cent.	96 Per Cent.
Nonprotein nitrogen...	44	70	102	92	136
Urea nitrogen	18	48	70	65	112
Creatinin	0.1	0.4	0.9	0.3	0.5
Uric acid	0.7	0.9	2.5	21.5	15.7
Sugar	125	110	111	143	150
Alkaline reserve	67	68	55	52	50

* Dog 209, Department of Chemistry, New York University, May, 1917. No infection; no elevation of temperature; average pulse, 150; tremors; death, one hundred and tenth hour.

TECHNICAL STUDIES IN DOGS

Investigations with a view of determining the best technic for developmental reconstruction (right side colonic resection) were conducted by resecting 10 cm. oral and 10 cm. aboral, using the ileocecal valve as the dividing line. Three forms of anastomosis were used, "end to end"; "end to side" and "side to side." The majority of the animals developed a semisolid or watery stool after operation. Stools became normal in seven days, on an average. From a technical standpoint, lateral anastomosis was the easiest to perform. Although it was the most difficult and showed the greatest mortality, end to end anastomosis gave the best postoperative results. Dilatation of the oral end of the intestine was noted both in lateral and in end to side anastomosis. The "end to side animal" vomited postoperatively for several days, and was the worst as regards vomiting. There was less vomiting after the end to end anastomosis. Roentgenoscopy was applied to all animals within two and a half to three hours after the bismuth meal given before and after operation.

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[1] Draper, J. W.: Observations upon Form of Death Resulting from Certain Operations upon the Duodenum and Jejunum, Surg., Gynec. and Obst., May, 1906.

[2] Draper, J. W.: Is Death in High Intestinal Obstruction Due to the Absorption of Bile? (Rockefeller Institute Fellowship Research), Ann. of Surg., October, 1907.

[3] Draper, J. W.: Studies in Intestinal Obstruction, The Journal A. M. A., Sept. 26, 1914, p. 1079.

Roentgenoscopic interpretations:

Best results—end to end—no effect as regards delay, local or reflex.

Moderate results—end to side—moderate delay in stomach; no anastomotic delay.

Worst results—lateral—marked delay in stomach (reflex), slight at anastomosis.

Prof. George Wallace of New York University kindly directed for me the intravenous introduction of a chemical residue derived from the treatment (Whipple's technic) of 1,000 c.c. of proximal loop fluid from duodenally obstructed dogs by Professor Gettler, department of chemistry. We were unable either to cause the dog's death by intravenous injection of the entire amount collected, or to show any reaction whatsoever. Dr. Stark made the obstructions and collected the fluid.

SUMMARY

Our experiments on animals have led us to believe that death in high intestinal obstruction is due to a perversion of enzymal function. The symptoms are so fulminating in character as compared with those of obstructions aboral to the point of maximum physiologic enteric activity that until recently they have received far more attention both experimentally and clinically than those of the caudad obstructions.

This is true of both complete and incomplete types. It is the purpose of this paper to correlate the two and to show not only the close relationship which actually exists but also to point out the great importance of experimental surgery to clinical progress.

It is natural, after all, to expect that in a segment of the intestine so highly specialized as the duodenum, perversion of function should rapidly reach a climax. Here the most complex functions of digestion are consummated with rhythmic precision. It is not surprising that so gross an insult as must attend obstruction must be followed by violent biochemical reactions. A marked acidity of the gastric contents causes the pancreatic juice to be poured out, and initiates peristalsis in the gallbladder. Very high acidity causes a marked flow of bile. On the other hand, the cecocolon bears such a close resemblance to the stomach both functionally and mechanically, and these characteristics are so gross as compared with those of the duodenojejunum that they necessarily do not react so actively to interference. Embryologically they have practically the same developmental history. Until recently the cecocolon has received only limited study as compared to the stomach. This, too, is natural, both because of the nearness of the stomach to the duodenum, gallbladder and pancreas, and because many of the lesions of the colon are at first referred to the stomach. Only a few years ago Moynihan in his classic work on duodenal ulcer gave what he considered a typical picture of duodenal ulcer symptomatology which was thought to be pathognomonic, but which we now know can be caused by a chronic appendix, an elbow adhesion, a gallbladder, a long sigmoid or other lesions. He later admitted that it is almost impossible in some cases to differentiate intra-abdominal lesions through a study of their subjective symptoms alone. It is necessary to have a clear understanding of comparative embryologic pathology in order to appreciate the conditions often encountered when the human abdomen is opened. One is surprised to hear frequent and bizarre efforts to explain by mechanics atypical variations in the sigmoid that have a patent embryologic origin. The sigmoid and the cecum are two of the most variable organs in the body, and the esoteric stomach symptoms that arise are due to the variations rather than vice versa.

The intestine is developed by buds. This permits of wide variations in type. The primitive intestine is a good deal like that of the fish, two loops lying side by side. Like other theories that are mechanical in basis, the mechanical rotation of the intestine is now set aside, and it is shown to be a well ordered and systematic process depending on accommodation to existing conditions and regulated by intra-abdominal pressure. In the embryo the liver is so large that very little room is left for the intestine, and all the bowel, except its beginning and end, develops for a period outside the abdomen.

Now, as the liver fails to keep pace with the growth of the abdomen, the pressure within is diminished and the intestine gradually recedes within, until finally the primitive cecum and transverse colon accept the place allotted to them and gradually recede to a resting place over the duodenum and in contact with the kidney—the so-called second position. Here it remains until after birth, when it usually migrates toward the iliac fossa. During the process of rotation and subsequent migration, many irregularities may arise, which account for much adult pathology. Notable among these we may mention frequent delamination of the peritoneum and failure of fusion. My colleague, Jerome Lynch, has given much thought to these conditions. We believe that adventitious membranes are not in themselves harmful, but if, as a result of failure of fusion, partial obstructions periodically supervene, resulting in atrophy and pigmentation, as observed by our colleague, McFarland, in fresh cecal tissue, then those adventitious membranes are converted from normal peritoneum to connective tissue bands. Every one is aware that should this process continue, contracture follows and the typical elbow deformity previously described by us is inevitable. Furthermore, we are of the opinion that the dividing of normal extraneous peritoneal bands very often may precipitate what I have just described.

These physiologic and embryologic considerations help us to realize that, while there are great variations in the alimentary canal, it must be considered as a whole and that throughout it is subject to the same fundamental laws. What is true of one part is in a limited and discretional sense true of the rest, and this, in spite of the singular analogies between the gastric and colonic ends, which are purely mechanical, as contrasted with the duodenojejunum, which is almost wholly biochemical in action.

Thus, one is tempted to hazard the hypothesis that the syndrome in man called intestinal toxemia is really a subacute or chronic manifestation of the acute duodenal toxemia observed in obstructed dogs, modified perhaps in many ways by the toxins of a secondary bacterial infection. I have been forced to a favorable consideration of this hypothesis by an exhaustive study of twenty-nine cases of developmental reconstruction of the colon in which the right colon has been removed either by my colleague, Jerome M. Lynch, or myself, and recently reported by me.[4] Satterlee, Smythies, Einhorn and others have repeatedly noted that marked constipation can occur without the symptoms of toxemia, and it is evident that constipation is a protective symptom. We are miserable and stupid when constipated, but not because of the protective symptom constipation. We are constipated because of intra-enteric glandular disturbances similar to, but less severe than, those which occur in a duodenally obstructed dog.

That bacterial toxins serve to complicate the syndrome of autotoxemia is not to be questioned, particularly in view of the researches of Satterlee, who has achieved such marked results in otherwise hopeless cases through the injection of autogenous colonic vaccines. His recital of a fatal case of intestinal obstruction that produced such marked muscular spasm as to be mistaken for tetanus is a valuable addition to the literature. In Robert Brown's case of cecosigmoidostomy, which was afterward cured by the developmental reconstruction of the colon, the patient suffered from typical tetanoid seizures in the hands until relieved by operation.

Thus, our human and experimental animal studies continue to support the nonbacterial biochemical theory as to the cause of death in obstruction, and also to yield additional evidence that the symptoms of human autotoxemia have a common origin with those of a duodenally obstructed dog.

ABSTRACT OF DISCUSSION

Dr. Joseph C. Bloodgood, Baltimore: Dr. Draper was one of the first to call attention to duodenal death as a definite thing. I have seen duodenal death; I have had a case of it; at least, I thought it was duodenal death, and I performed an exploratory operation on the woman. I have seen postoperative duodenal death after a plastic operation for pyloric stenosis when obstruction was not there; and when the stomach had been resected and a gastro-enterostomy performed, it showed a kink and the duodenum closed in both ends. I have had two such cases in my own practice. I always think of it when I resect a stomach, and always try, if I must resect a stomach, to reestablish the continuity by suturing the duodenum to the stomach. There must be some experimental work along this line, and any man who devotes his time and labor to this work is one we should encourage in every way. I do not see much hope for the clinical side. I have the impression that it is one of the peculiar problems the progress of which must come from the experimental side.

Dr. Draper said he did not read the chemical part of his paper. This is really a discussion in embryology; but few medical students can discuss these matters intelligently. One of our greatest teachers has brought out the fact that in the medical curriculum we have exaggerated biology, while chemistry and physics are not given their proper place. There are few of us who can think in terms of chemistry, although we have had some chemistry. We have anatomic vision, pathologic and bacteriologic vision, but when it comes to chemistry in our profession, it is made conspicuous by its absence, except in a very few. One of the important things in changing the medical course today is the emphasis of chemistry and physics.

Dr. John Bryant, Boston: In 1910-1912 I had a very intimate experience with what medicine and surgery could do at that time for the chronic intestinal invalid. This experience was not wholly satisfactory; therefore, I concluded to make some personal investigations. As a result of my postmortem work I published a provisional classification of human types. This classification extended to man the use of the terms carnivorous and herbivorous as commonly understood in comparative anatomy.

There is a general impression, based doubtless in part on current textbooks of anatomy, that the human viscera are made on one model. This is not so. The intestine, for example, may be 10 or 40 feet long, but as in the lower animals, so in man, a short intestine tends to go with the long body form and a long intestine with the wide body form at a given height. All this affects the disposition and function of the viscera.

Dr. Lewis has reported from Worcester, on the basis of my classification, a series of 500 schoolchildren in whom only 10 per cent. were of a textbook normal build. In every ten of these children there was one normal to three of the wide or herbivorous type and six of the thin or carnivorous type. This was certainly a considerable variation on either side of the so-called normal, and was associated with definite variations in mentality.

Treatment of the chronic intestinal invalid must be approached simultaneously from three different points of view—mental, medical and orthopedic. Mental peculiarities must be considered, diet must be regulated, and with these must be employed reconstructive orthopedics.

In the practical matter of diet, I have found that though many invalids cannot take eggs, meat and fish for more than a few days consecutively without getting some sort of reaction, they may, on the other hand, often do well if the use of these three articles is restricted to two or three days in the week. They need the stimulus from these foods, but must get it through an alternating diet.

Dr. Jerome M. Lynch, New York: In listening to the discussion on constipation in this section I noticed that a great many men confounded constipation and autointoxication. Now, it does not follow by any means that because a patient is constipated that he is autointoxicated, or that because he has autointoxication he is constipated. It does not always follow that because a man or woman is not of normal type that that patient does not suffer from intoxication. I have noticed recently a great many women of the male type who suffer from a very marked type of autointoxication. In making experiments in ileocecal insufficiency I have become rather convinced that it is not really a surgical but a medical condition, for the sphincter can be closed by epinephrin. It is really remarkable how few men study a subject before applying a remedy. If the question of ileocecal insufficiency had been studied from the physiologic standpoint before it was studied from the medical and surgical or therapeutic standpoints, it would be seen that the problem was a question more of internal secretions than a mechanical one. Yet, I have heard one of our foremost roentgenologists say that it is entirely a mechanical problem. In 1822 a man named Goode drew attention to the fact that the ileocecal valve (so called) was not really a valve, but that it was a muscle, and one hundred years afterward, we have exactly the same problem presented to us showing that, notwithstanding the fact of the very wonderful studies of Elliott and other men, we have made very little advance.

The question of intestinal obstruction, both of the oral and aboral end, is interesting. The oral has received a good deal more careful scientific study than the aboral; the complete more than the incomplete. Dr. Bloodgood has done much pioneer work on the colon. I have done only thirty developmental reconstructions, as it has taken a long time to find out the type of case in which operation should be performed, and long, careful postoperative study extending over several years seems the best and only basis for decision. Draper and I are convinced that the symptoms of complete duodenal and incomplete colonic obstruction have a common origin in an interference with the internal secretions of the gut and its derivatives, the liver and pancreas, with secondary bacterial infection. These disturbances have been rightly called autointoxication, but it is a gross mistake to suppose that they are caused simply by absorption of decomposed food. This is supported by the studies of Boldireff on the periodic functions of the gut. The attendant constipation and diarrhea are probably protective rather than provocative. In the advances of the physiologic surgery of the gut we should never forget its debt to Mr. Lane, whose work, already superseded, gave the original impetus and placed us where we stand today.

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[4] Before the 1917 meeting of the American Society of Gastro-Enterology.

Dr. John W. Draper, New York: I should like to add, in support of what Dr. Lynch has just said, that we have very interesting proof, I think, of the statement that constipation does not mean intoxication. We have usually performed a lateral anastomosis in removing the right side of the colon, and as just said, that results in a great deal of delay at the point of anastomosis. Nevertheless, in these cases the patients are often relieved of this intricate symptomatology which we call autotoxemia, although they are thoroughly constipated at the point of anastomosis, often for 100 hours, and it does not appear to interfere with their well-being. Constipation is a protective symptom and patients are constipated because they are autotoxemic, not vice versa.

TEN YEARS' EXPERIENCE WITH THE GRADING OF MILK

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In 1907, the board of health of Radnor Township, Delaware County, Pa., formulated a set of milk hygiene rules for producers of milk to be sold in the township, and as these rules have now been in force for ten years their effect on milk production and milk producers can be well seen.

Radnor Township is a distinctly rural community of the better class, consisting of the combined villages of Wayne and St. Davids, about 15 miles from Philadelphia on the main line of the Pennsylvania Railroad, having about 6,500 inhabitants and surrounded by a district of farms and country estates. It includes also a portion of Rosemont with several smaller settlements. The milk rules of the board of health govern not only milk produced in the township, but also all milk brought into the township for sale, the dairies producing such milk being subject to the board's inspection. No producer can register as a retailer or wholesaler of milk in the township unless he first files a certificate of health for his cattle signed by a competent veterinarian recognized by the board, and these certificates must be renewed every six months.

This paper does not attempt to give all the milk rules of the board, but gives only those referring directly to classification. These rules include a system of classification and grading of dairy farms which has so far given excellent results. The board from the first has recognized six classes or grades of milk. These grades are based on a combination of the use of the dairy score card, giving the results of a sanitary inspection of the dairy, the cows and the milk handlers, and of an examination into the methods employed, and the degree of cleanliness found; also on a frequent bacteriologic and chemical testing of samples collected at the farms and from the milk wagons at irregular intervals.

Class A milk must have a bacterial colony count of not over 10,000 per cubic centimeter, with no disease-producing organisms or peptonizers, and must come from tuberculin tested cattle with a dairy scoring of not less than 90 out of a possible 100 points on the score card, which entitles to the rating of an "excellent dairy."

Class B milk must have a bacterial colony count of not over 100,000 per cubic centimeter with no disease-producing organisms or peptonizers, and must come from healthy cattle with a dairy scoring of not less than 80, which is required for the rating of a "good dairy."

Class C milk must have a bacterial colony count of not over 500,000 per cubic centimeter with no disease-producing organisms, and must come from healthy cattle with a dairy scoring of not less than 70, which is rated as a "fair dairy."

Class D is pasteurized milk having a bacterial colony count of not over 1,000,000 per cubic centimeter before pasteurization and not over 50,000 per cubic centimeter after pasteurization with no disease-producing organisms.

Class E includes all raw milk with a bacterial colony county of over 500,000 from dairies with a score card under 70.

Certified milk from farms having the certificate of the Philadelphia Pediatric Society forms the sixth class, and is practically of the same grade as Class A milk.

The grading of dairies is done by the milk hygiene agent of the board, a trained veterinarian, and the bacteriologic and chemical examinations are made by the state livestock sanitary board laboratory and a commercial laboratory in Philadelphia, samples being collected and shipped by the milk hygiene agent or the health officer. Reports are made to the board quarterly, the classification in such reports being based on three or more surveys and milk examinations during the quarter. In case less than three surveys have been made, and this happens only with the new producers, the dairy is reported as unclassified. These quarterly reports are published as news by the local weekly paper, and many consumers are influenced thereby in the choice of a milk dealer.

The score card used in Radnor Township is the card recommended by the United States Department of Agriculture, with some modification to adapt it to local conditions. This card aims to place special emphasis on cleanliness and common sense in the handling of milk rather than on any special elaborate or expensive equipment or buildings. It has been found more than once that a careful, cleanly dairyman can produce excellent milk in an old fashioned country barn. On the other hand, there is abundant evidence that the best, most elaborate and expensive of dairy barns and equipment and the finest pedigreed stock will not insure a good rating without constant care and intelligent supervision. The grading of milk also includes consideration of milk temperature at dairies, in milk depots and on wagons, and an inspection of milk depots.

Table 1 gives a summary of the January reports for the ten years and shows very little change in the certified or pasteurized classes, but very interesting results in Classes A, B, C and E, illustrating the effect of continued inspection and publicity on milk producers as a whole. The sudden decrease in the number of producers in Class E seen in 1916 and their elimination in 1917 is due to the fact that in 1915 the board decided to prohibit the sale of Class E milk unless clearly labeled as "cooking milk," and after due notice this rule began to be enforced in April, 1916. As will be seen, this resulted in all of the Class E producers who would not or could not improve conditions going out of business. Of the eighteen producers in this class, in 1915, one half, or nine, when they found it necessary, succeeded in moving up into Class B or C, while the other nine simply stopped producing milk for sale.

Table 2 lists only Classes A, B, C and E, and gives the percentage of each in the total for each year and shows clearly a gradual and steady improvement from year to year. In the beginning there were over 59 per cent. of poor dairies, over 20 per cent. of fair, over 18 per cent. of good, and less than 3 per cent. of excellent dairies. A change was seen the first year in a lessening of Class E to under 42 per cent., with a corresponding increase of Class C to over 39 per cent. No very marked change is seen in the better classes until 1915, when, under the stimulus of the new rule, Class B increased from under 16 to over 40 per cent., while Class C dropped to under 18 per cent. In 1916, Class B lost one to Class A, but Class C increased from 17 to 40 per cent. at the expense of Class E, which dropped from over 38 to 18 per cent. In 1917, Class A gained two from Class B, and Class B increased from 36 to over 43 per cent, partly from Class C and partly from Class E. Class C showed a further increase from Class E, which was entirely eliminated. An added inducement for the higher class of producers was the fact that Class A milk has always brought about 2 cents a quart more than other milk, which the board feels is justified by its inspection and tests. For the first five years there was a steady lessening in the numbers of Class E, with a corresponding increase in Class C; but then through carelessness there was a change for the worse, and it was halted only by the introduction of the new rule requiring labeling of Class E milk.

TABLE 1.—CLASSIFICATION OF MILK IN RADNOR TOWNSHIP *

Class	January									
	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917
Certified class, having certificate from Philadelphia Pediatric Society	2	2	2	2	2	2	3	3	3	3
Cass A, excellent dairy; sanitary score 90-100; bacterial colony count not over 10,000 per cubic centimeter; tuberculin tested cattle	1	1	0	2	2	2	2	2	3	5
Class B, good dairy; sanitary score 80 or over; bacterial colony count not over 100,000 per cubic centimeter	9	8	6	6	7	10	8	19	18	17
Class C, fair dairy; sanitary score 70 or over; bacterial colony count not over 500,000 per cubic centimeter	10	19	22	25	29	23	22	8	20	17
Class D, pasteurized; bacterial colony count not over 1,000,000 per cubic centimeter before and not over 50,000 after pasteurizing	1	1	1	1	1	1	2	1	2	1
Class E, poor dairy; sanitary score under 70; bacterial colony count over 500,000 per cubic centimeter	29	20	19	18	15	17	19	18	9	0
Not classified	....	....	....	....	....	3	1	2	4	
Total	52	51	50	54	56	58	57	53	59	43

* Based on the last three sanitary examinations of milk and the bacteriologic and biochemical tests of milk.

The decrease in the total number of dairies in 1917, as seen in Table 1, is due not entirely to the strict enforcement of rules, but also to the general economic situation. The high cost of materials, feed and labor has resulted, not only here but throughout the state generally, in discouraging many farmers from producing milk. This condition is probably less marked in Radnor Township than in many places, since, owing to the careful supervision of the milk supply, the consumers are more ready to pay a fair price for milk. When this work was begun, milk sold for from 5 to 8 cents a quart, while now few producers get less than 12 cents.

The results here shown were obtained not by the adoption of milk grading alone, but by constant intelligent supervision on the part of the milk hygiene agent. The aim of the board was not so much to do police work and punish delinquents as to do missionary work and encourage the dairymen to be constantly improving conditions. It has seldom been necessary to prosecute delinquents, and, after the first natural opposition to a new plan, the dairymen have come more and more to welcome the visits of the milk hygiene agent and to look to him for advice and help in planning improvements. In 1916, our agent received forty-seven requests for such advice and help. The majority of these were during the poliomyelitis epidemic. Also, consumers frequently ask him for advice in the selection of a dairy.

Strict impartiality is essential to success in dairy grading. Among the milk producers in Radnor Township are some wealthy gentlemen farmers with whom dairying is a hobby, and these receive the same treatment as the poorest farmer with only a few head of cattle. It occasionally happens that, on account of carelessness in the dairy, one of these farms is summarily removed from the excellent or good class to the fair or even poor class. On two occasions one of these dairies, not the same one each time, has been forbidden to sell milk at all until conditions were improved.

This brief paper will show what may be done in a rural community to improve the milk supply by the grading of milk producers, if accompanied by constant intelligent supervision and frequent examinations. Mild rules will not enforce themselves, however, and constant watchfulness is needed; but the Radnor board feels that time and money spent in this work is well worth while, and would regret very much to be obliged, for any reason, to discontinue this work.

TABLE 2.—PERCENTAGE OF MILK PRODUCED IN RADNOR TOWNSHIP IN CLASSES A, B, C AND E, BASED ON TOTAL OF THESE FOUR CLASSES *

Year	Producers in Four Classes	Percentage in Each Class				Total per Cent.
		Class A	Class B	Class C	Class E	
1908	49	2.0	18.4	20.4	59.2	100
1909	48	2.0	16.7	39.6	41.7	100
1910	47	0.0	12.8	46.8	40.4	100
1911	51	3.9	11.8	49.0	35.3	100
1912	53	3.8	13.2	54.7	28.3	100
1913	52	3.9	19.2	44.2	32.7	100
1914	51	3.9	15.7	43.1	37.3	100
1915	47	4.3	40.4	17.0	38.3	100
1916	50	6.0	36.0	40.0	18.0	100
1917	39	12.8	43.6	43.6	0.0	100

* Calculated to nearest tenth per cent.

Insect Transmission of Disease.—Dr. L. O. Howard in a recent address before the Washington Academy of Sciences gave some statistics as to the number of insects which stand in etiologic relation to various diseases. Up to the present, discoveries have been recorded of the carriage of 226 different disease organisms to man and animals. An important recent discovery is that of the transportation by wind of the body louse, which is the carrier of typhus fever. In the *Bulletin* of the Pasteur Institute, Paris, for Dec. 15, 1916, there was a review of seventeen papers on the louse in connection with disease by authors of seven different nations.

AN ADDITIONAL CASE OF SPOROTRICHOSIS *

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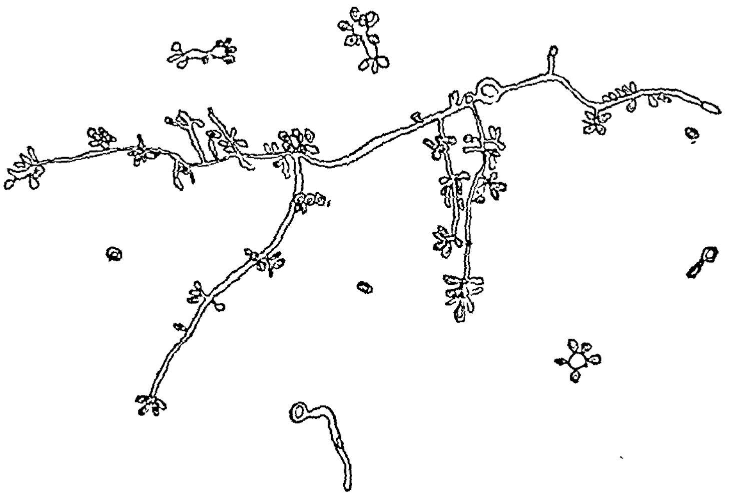
Although sporotrichosis has been known only since 1898 a considerable volume of literature has been published, and a constantly increasing number of cases is being reported. While the cases reported in America are still less than a hundred, this seeming rarity in its occurrence is due more probably to the fact that the condition is usually not recognized clinically. It often closely resembles syphilis, and the prevalent idea that a circumscribed, punched-out ulcer that refuses to heal should be strongly suspected as being caused by syphilic infection has led to the treatment of the condition with iodids, with resultant cures. The case is usually diagnosed as one of cutaneous syphilis, on account of the disappearance of the lesions under the iodid treatment. Though discovered first in America, the clinical bacteriologic aspects of this disease have been worked up most thoroughly in France, and there is a large amount of French literature on the subject. De Beurmann and Gougerot have contributed most largely to our knowledge of this condition. For a full description of the clinical and pathologic findings, with special reference to the various clinical types, the reader is referred to the article by De Beurmann.[1] The disease is most widespread in the organs it attacks, but so far only the cutaneous types have been described in the United States. Several species of the sporothrix are described in the literature, the most common being *Sporothrix beurmanni,* but an attempt to classify an organism which has been isolated, guided by the published descriptions, makes one agree with Meyer and Aird[2] in their conclusion that *Sporothrix schenckii* and *beurmanni* are of the same species, which is best called *Sporothrix schenckii-beurmanni.*



Four day culture on hanging-drop of 2 per cent. glucose agar. Outline drawing of actual microscopic field.

REPORT OF CASE

The case of sporotrichosis that is responsible for this note occurred in a patient from Winner, S. D. He was a Russian laborer, aged 33 years. He appeared at the dispensary of the Creighton Medical College for treatment. He gave the following history: About three weeks before appearing for treatment the patient noticed a small nodular swelling in the neck below the left ear. It was only slightly tender. Soon there appeared on the left side of the face from the bridge of the nose to the angle of the mouth, several similar swellings. These gradually became soft but caused only very slight pain. He complained of attacks of epistaxis and obstruction to nasal breathing. The patient stated that he had been caring for horses for the past few months, and that about four weeks before he became sick, the horses had been affected with a throat condition that he thought was glanders, though a clear history of the affection of the horses could not be obtained. The patient knows of no injury that he received that might have served as a point of entry for the sporothrix. The rest of the history is irrelevant.

Physical examination showed a patient apparently in good health. Below the left ear in the neck was a subcutaneous nodule about 1 cm. in diameter. There was moderate edema of the left eyelids. On the left side of the nose in the skin and involving the subcutaneous tissue was a swelling 3 cm. in diameter. It was soft in the center with an indurated periphery. Close to this on the side of the face were two similar nodules. They were about 2 cm. in diameter, hard at first but softening in the center in three or four days. After a few days similar nodules occurred at the angle of the mouth, and there appeared a submaxillary lymph node about 1 cm. in diameter. The nodules were purplish-red, elastic, with fluctuating centers and indurated edges, and were only slightly tender.

A clinical diagnosis of glanders was made and the patient was sent to the bacteriologic laboratory for cultures. The fluctuating lesion on the side of the nose was aspirated and about 1 c.c. of thick gelatinous pus obtained. Smears of this failed to show organisms. The pus was inoculated onto Loeffler's coagulated serum medium, blood agar, glycerin agar, and 2 per cent. glucose ovarian cyst broth. On the fourth day there appeared on the Loeffler's medium scattered small whites colonies which later became thickly wrinkled and leathery. In the broth there were tiny white cotton-like flakes lying on the bottom, with clear supernatant fluid. Smears from the solid mediums showed large numbers of oval spores with an occasional thread of mycelium. Some of the masses fished from the broth were tangled balls of mycelium which were divided by septa. In the meshes were numerous spores, some of which were attached to the sides of the mycelium by a fine stem. The organism stained deeply with the usual dyes and was Gram amphophile. The spores contained an eccentric and nonstaining refractile body. Subsequent transfers of the organism showed the best growth on 2 per cent. glucose agar. The growth in transplants appeared in forty-eight hours, at first as isolated white colonies, which later became thickened and leathery, and in from ten days to two weeks began to develop brown or black pigment. The growth tended to penetrate the surface of the medium, so that the medium was torn on removing any of the growth. In some cultures the growth remained finely granular, not developing the leathery appearance. In these the growth was confined to the surface of the medium. Attempts at anaerobic cultures were unsuccessful. The organism grew equally well at room or incubator temperature.

The development of pigment was variable. In some cultures none at all was formed. None was formed if air was excluded from the tube after the growth was obtained. In some tubes the color was uniform, being any shade from a light brown to a black, while in other tubes the surface was mottled. The advancing edge of the growth often was white while the center was deeply pigmented and this pigment was in the spores. Davis[3] has succeeded in obtaining pigmented and nonpigmented strains by securing his material for transplants from corresponding areas in the growth. These strains have remained true after many transplants and after animal passage. In the first two or three weeks the surface of the growth was shiny and moist, but after prolonged growth it was usualy covered by a fine powder due to spores on aerial branches. In cultures of several months' standing large oval bodies two or three times as large as the usual spores were found (chlamydospores?).

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* From the Bacteriologic Laboratory of the Creighton Medical College.

[1] De Beurmann: Sporotrichosis, Brit. Med. Jour., 1912, **2**, 289.

[2] Meyer, K. F., and Aird, J. A.: Differentiation of Sporotricha by Fermentation, Jour. Infect. Dis., 1915, **16**, 399.

[3] Davis, D. J.: Chromogenesis in Cultures of Sporotricha, Jour. Infect. Dis., 1915, **17**, 174.

Cultures on hanging-drop agar showed the mycelium to branch irregularly, the spores springing from the sides by slender stems or grouped around the ends of the branches as pictured in the illustration.

This case adds another one from the Missouri Valley, where, according to Reudiger,[4] by far the largest number has been found.

Unfortunately the patient disappeared about the time the cultures were obtained and efforts to locate him were unsuccessful.

CANCER OF THE RECTUM AND THE PELVIC COLON

STATISTICAL AND CLINICAL REVIEW OF FOUR HUNDRED AND NINETY-ONE CASES *

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I have seen to date 491 cases, which my associate, Dr. Giles, has tabulated (Table 1). Fifty-one patients died and 253 recovered, a mortality of 16 per cent. for radical excision. The remaining forty-one cases not included in the series were colostomies and palliative operative procedures for inoperable cases.

TABLE 1.—ANALYSIS OF FOUR HUNDRED AND NINETY-ONE CASES

	No.
Males	281
Females	210
Nature of Disease:	
Adenocarcinoma	451
Epithelioma	15
Colloid carcinoma	4
Scirrhous carcinoma	4
Round cell sarcoma	5
Melanosarcoma	5
Lymphosarcoma	4
Spindle cell sarcoma	3
Patients operated on	344
Radical excision	304
Simple abdominal section	20
Combined operation	111
Operations in one stage	75
Operations in two stages	36
Perineal	102
Kraske operations	20
Operations by modified bone flap method	32
Intrarectal operations	18

I feel very strongly that early colostomy in inoperable cases is as vital to the patient as early operation in operable cases. And I further feel that it is a great injustice to put off this operation until the patient is moribund. If colostomy is indicated, it certainly should be performed before the individual has become so weakened by the disease that the operation will be of no benefit.

There are so many inherited misconceptions with regard to cancer, and they are so firmly rooted in the minds of the laity, that it will require a long time to dislodge them. Reeducation is essential if we wish to progress. Textbooks on surgery, except the more recent, lay stress on age, pain, cachexia, loss of weight, and tumor as the cardinal symptoms of cancer. This is very misleading. Cancer knows no age; 0.5 per cent. of these cases are in children under 9 years of age; 2.5 per cent. of the patients are under 19, and in my personal experience 7 per cent. were under 30 and 9 per cent. were between 30 and 35 years of age.

The symptoms mentioned in the textbooks are those associated with the last or inoperable stage of cancer. Many of these patients seen by us had had unmistakable symptoms of the disease for over a year, although some of them had gained in weight.

The average duration of symptoms before admission is just over 8 months.

TABLE 2.—AGE OF CANCER PATIENTS

	No. of Patients
Under 20 years	4
Between 20 and 30 years	32
Between 30 and 40 years	66
Between 40 and 50 years	117
Between 50 and 60 years	136
Between 60 and 70 years	91
Between 70 and 80 years	21
Over 80 years	7
Not stated	17
Total	491

Cachexia seldom appears until cancer is far advanced, and then principally in old persons and in those with cardiovascular diseases. One does not often associate pain with cancer of the rectum, except as a terminal symptom, and when the tumor is situated adjacent to the anus. In rectal malignancy the tumor can usually be felt with the finger, and on this examination alone a diagnosis can be made; but when the disease is situated in the sigmoid or the colon, the diagnosis is made in the former by means of the proctoscope. In the latter case, I admit that many difficulties are encountered in arriving at a conclusion. However, the roentgen ray and the natural inhibition usually associated with malignancy, together with the presence of blood in the stool and the reaction of occult blood, afford material aid in differentiating benignancy from malignancy. Except in advanced cases, an abdominal cancer can very seldom be felt, and then only in patients with a relaxed abdominal wall. Frequently, when a mass is found, it is an accumulation of fecal matter above the site of the growth, and not the tumor.

It is fortunate for the individual if this accumulation of fecal matter occurs early, as then, at operation, the malignancy is recognized. The late Dr. William Bull told me that he believed the day was not far distant when the public would be so educated as to accept exploratory laparotomy in every instance in which there is doubt. He lamented the difficulties he encountered in trying to convince patients that this was the proper course to pursue. If we could only remove from the minds of our patients preconceived notions of the immodesty of a rectal examination and insist on this in every case, many tumors would be discovered in their incipiency. Especially must we eliminate malignancy in cases in which there are constipation, diarrhea, hemorrhoids and loss of blood.

TABLE 3.—LENGTH OF TIME SYMPTOMS OF CANCER HAD BEEN APPARENT

	No. of Patients
Under 4 months	54
From 4 to 6 months	87
From 6 to 9 months	99
From 9 to 12 months	102
From 12 to 18 months	42
From 18 to 24 months	45
From 24 to 30 months	14
From 30 to 36 months	8
Over 3 years	3
Not stated	37
Total	491

When it is realized that 10 per cent. of my patients had had an operation for hemorrhoids within a few months of the time when I first saw them and that they might have been spared the suffering which followed those operations, we must feel convinced of the necessity of being thorough, and conclude that hemorrhoids are all too often the symptom of a worse malady.

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[4] Reudiger, Gustav: Sporotrichosis in the United States, Jour. Infect. Dis., 1912, **11**, 193-206.

* Read before the Section on Gastro-Enterology and Proctology at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

Twenty per cent. of these patients had an incorrect diagnosis and were treated for stomach and enteric disease, when, in reality, they were suffering from a malignancy remote from these organs. It is well known that esoteric stomach symptoms are very misleading, but here again we are confronted by the lack of thoroughness.

We should make it a rule, no matter in what branch of medicine or surgery we specialize, to see that every patient referred to us has the thorough examination to which he is entitled. One fails to be thorough if one overlooks anything, and is guilty of neglect toward that patient.

Dr. John B. Murphy's advice to me, when I started to practice, was to examine every patient thoroughly, and if he refused such an examination, to decline to treat him. Nicholas Senn, on so many occasions, reiterated the necessity of a digital examination that I am sure most of his students followed his advice.

Many cases of carcinoma of the rectum are turned down as inoperable without due consideration. This decision is often influenced by the high mortality in the hands of some surgeons. Also, because in the past, a large tumor mass with the involvement of some unimportant structure was considered as a contraindication to a radical operation. I recall several instances in which this decision influenced the surgeon. But we should remember that cancer here remains stationary for a very long time, that the patient is facing certain death unless some effort is made to eradicate the growth, and that even if the patient should die in the attempt to save him, he is at least spared a great deal of horrible suffering. On many occasions I have found it necessary to remove the uterus, resect the vagina, remove a portion or the whole of the prostate, resect the seminal vesicles, resect the urethra, perform a radical Wertheim operation, resect several coils of the intestine and resect the bladder wall.

TABLE 4.—RESECTIONS IN CANCER PATIENTS

	No. of Cases
Removal of a part or the whole of the prostate	20
Resection of urethra, prostate and seminal vesicles	6
Resection of bladder wall	4
Resection of a part or the whole of the vagina	14
Hysterectomy complete	9
Wertheim hysterectomy	5
Removal of one or more coils of the intestine	6

One must expect a high mortality in such radical operations; but the percentage of cures is a sufficient justification to encourage us to continue and, if necessary, to do even more radical work. Dellman, in 1916, giving statistics for cancer in the Netherlands, says, in conclusion, that the more radical treatment of cancer nowadays is curing so many patients that the day is approaching, if not already here, when the number of deaths from malignant disease will no longer be an index of the actual prevalence of cancer. This is certainly encouraging, coming as it does from one who has evidently studied the subject very thoroughly.

The choice of operation in cancer of the rectum is always perplexing, and one that cannot be decided offhand; but it is safe to say that there are four operations, any one of which, when indicated, offers a solution to the problem.

Patients very often insist on knowing beforehand whether they will be left with a hole in their side, or whether it will be possible to restore the anus to its original site. Some men, in an effort to please, make contracts that they are unable to fulfil. This is unwise. In such a vital matter, the surgeon should insist that he be given full power to do what in his judgment is to the best interest of his patient. No surgeon should tie his hands beforehand and feel compelled, because of a previous understanding, to perform an incomplete operation when a slightly more radical procedure might prevent recurrence. I myself prefer to place the anus at its original site; but I never hesitate to leave a patient with a colostomy if by so doing I can get a better result. I never consider placing the anus high up in the sacrum, or in any other situation than the original site, because I believe that a colostomy is preferable to a stoma in any other than the normal position.

I agree with the surgeons who state that perfect continence can never be attained by attempts at restoration of the intestine to the normal anal site. Yet I have so many cases in which patients have enjoyed great comfort with this imperfect continence that I am convinced that this operation has a place in surgery.

Everything being relative, this applies with equal force to incontinence; and I feel confident that if a census could be taken of patients with relative continence, after a radical operation of the rectum, none of them would be willing to have a colostomy, in preference to a relative continence, with the anus in its normal situation.

My operation of choice is the combined operation, with the anus in its normal site in the perineum. This gives one the advantage of being able thoroughly to explore the abdomen. I know from experience that the under and diaphragmatic surfaces of the liver are first involved, and that only by abdominal exploration can this be determined. There are other advantages, namely, that one can perform a practically bloodless operation, and remove all the interglandular tissue and fat with a minimum of traumatism.

It is my custom, whenever possible, to block the sympathetic by the combined extradural and hypogastric anesthetization, as I feel that, by this method, shock, which is a bugbear to all surgeons in this operation, is obviated. I suggested to Dr. Halstead that this procedure accounted for my better results since I have followed it; but he seemed to think that it was due rather to a more perfect technic than to the combined blocking. Still, I nevertheless feel a good deal like the surgeons of the old school after they had washed their hands in mercuric chlorid, that it is at least a step in the right direction, adds no risk to the operation, and is in keeping with modern thought. The work of Crile confirms me in my belief, and so long as it does not add to the danger or the length of the operation, it seems well worth while.

The fact that a perineal operation was performed by me completely under sacral anesthesia must convince the most pessimistic of its value as a distinct method in blocking sensory impulses.

Whether the combined operation should be performed in one or two stages can only be decided at operation, and the surgeon is guided by his own experience and judgment. Often the anesthetist becomes alarmed during the course of the operation, but the surgeon familiar with this operation can always see the danger signal ahead. I prefer to perform the operation in one stage whenever feasible, but I am not inflexible in my judgment and never hesitate, if I feel that there is extra risk, to divide it into two stages.

The perineal operation is indicated in very fat persons and in those so debilitated that any form of abdominal exploration would be almost sure to result in death. In looking over my perineal operations, especially in that decade when this was the operation of choice, I find so many good results that it is hard to believe that this method should have such a limited field of usefulness.

Kocher many years ago pointed out that extensive glandular enlargement does not necessarily mean that those glands themselves are carcinomatous. I have had those glands examined at levels, and at various distances, from the growth, and in the majority of cases they have proved to be merely inflammatory. However, at the present date, it is much safer to explore the abdomen than to confine oneself to the perineal operation alone.

In all cases, no matter what the operation, I remove the coccyx as a matter of routine. It affords far greater room, obviates the pain that follows the operation when the coccyx is not removed, permits of thorough drainage, and adds materially to the comfort of the patient in subsequent dressings.

When the growth is situated near the anus, it seems advisable to perform a colostomy first. At the end of ten days, a wide incision is made of the tuberosities on both sides, and the growth is removed *en bloc* after the ischiorectal fossae are thoroughly cleaned out. I have succeeded in restoring the anus to its original site, and I have obtained a relative degree of continence for so extensive an operation.

I have found it to be of advantage to pack the pelvis by means of a device that has given great satisfaction from the standpoint of drainage, and has spared the patients unnecessary suffering during the removal of the gauze. No doubt this is nothing new, and has probably been used with equal satisfaction by others; but I mention it for the benefit of those who are unfamiliar with its advantages. A rubber glove, from which the upper halves of the fingers have been cut, and in which a small opening has been made in the palmar and dorsal surfaces to permit of drainage, is passed into the pelvis as tightly as necessary to control oozing and to fill up the dead spaces posterior to the bowel. At the end of forty-eight hours the gauze can be removed, the wound irrigated, if necessary, or desirable, and the glove repacked.

I have long since abandoned resection of the rectum, as early experience has taught that stricture inevitably followed. This is owing to the fact that the rectum has a terminal blood supply, and *not*, as is commonly supposed, to the lack of peritoneal covering. It is an axiom in pathology that *the amount of connective tissue is inversely proportionate to the blood supply.*

Kraske's operation has been abandoned by most surgeons, and I see very little indication for it in cancer of the rectum.

The sigmoid and cecum are two of the most variable organs of the body. The sigmoid, particularly, varies within wide limits, as in the case of Hirschsprung's disease. It possesses few lymphatics, has a dense fascial covering, and, for this reason, sigmoidal growths remain stationary for a long time. On account of its wide variation, it lends itself easily to resection.

There are many drawbacks to end-to-end anastomosis in this region, on account of the blood supply and the danger of leakage. Recognizing this, Mikulicz, Tuttle and others have suggested a three stage operation which has a low mortality, but like all safe procedures, has many inconveniences, in that the patient is incapacitated for a long time, and it may require more than one operation to close the stoma. It would also seem that the danger of metastasis would be enhanced by the subsequent handling and pressure, and by allowing the growth to remain in situ many days after the first operation.

For several years, except in cases of obstruction and in patients that are greatly debilitated, I have used the following technic: The sigmoid naturally rests in the iliac fossa, and this can be taken advantage of to make a lateral anastomosis between the two limbs of the sigmoid. The mesentery should be tied as in the Mikulicz operation. Both legs of the sigmoid are then brought together by a peritoneal suture on the inside. The intestine is mobilized toward the center, the pelvic and small intestines being carefully walled off. Following this, an anastomosis is made on the outer side of the parallel limbs. After the anastomosis has been completed, the sigmoid is allowed to fall toward the iliac fossa and is sutured to the parietal peritoneum, dorsad, cephalad and caudad. A small cigaret drain is placed above and below the anastomosis, and the abdominal wound is closed, except for the skin. Both limbs are double clamped, and the growth is removed with the cautery. After this the ends of the bowel are inverted, and the skin is closed in the usual manner. If leakage should occur it will be practically shut off by the two walls of the peritoneum. If there is any trouble with the anastomosis, the skin is opened up, and the cephalad portion of the bowel is opened and drained.

108 East Sixty-Fifth Street.

ABSTRACT OF DISCUSSION

Dr. George B. Evans, Dayton, Ohio: I have never seen a patient with carcinoma under 55 years of age. In cases in which the pelvis is much involved—by that I mean the vagina, uterus, ovaries and tubes, seminal vesicles, prostate and posterior urethra—I believe we should not extirpate or resect. Although we may give our patients temporary relief, their secondary sufferings are greater. I have never used the cautery because I feel it is better for me to have my finger up in the wound.

As Dr. Lynch has said, the question of diagnosis is by far the most important in these cases, and we should make it with the aid of the proctoscope, sigmoidoscope and roentgenogram. We should never operate in any case of carcinoma until we have given the patient's kidneys a thorough consideration. We should never operate on these patients until we have brought the phenolsulphonephthalein test to our aid. In the first ten years of my work, nearly all of my cases were operable, as I thought in those days. In the last ten years I do not think that in all the cases I have seen 10 per cent. were operable. I find that all the organs in these cases are *involved*. Therefore, and in conclusion I wish to emphasize that I believe we are going back to where we were, so far as the good of the patient is concerned—back to colotomy.

Dr. Frank C. Yeomans, New York: Every one in speaking of cancer of the rectum and cancer of the colon emphasizes early diagnosis, saying that if the surgeon gets the patient early *enough he will* cure him, no matter where the cancer is. Then they urge that we examine the patients carefully. I think all this is very good precept and practice; but many men who have been practicing for years never examine patients carefully. They do not take postgraduate medical courses, and they were not taught in the undergraduate schools the method of making a routine examination. The only way that we can hope to succeed in this, I believe, is to have courses of instruction in enteroproctology introduced into the undergraduate medical schools and make this a compulsory part of the curriculum, so that a student may become familiar with the average pathology of the bowel and know how to use the ordinary instruments of precision. Then, if he cannot interpret the findings, he will, at least, have the wisdom to confer with some one competent to make the diagnosis before the disease has progressed to a stage where it is beyond relief. Until that time the entire profession will not receive adequate instruction, cancer of the bowel will not be recognized early, nor will the patient receive the benefit of early operation.

Dr. William M. Beach, Pittsburgh: I should like to ask Dr. Lynch the tenure of life following these cases.

Dr. Dwight H. Murray, Syracuse, N. Y.: The microscope does not tell us the histologic factor. This may seem strange. I will explain by saying that in the examination of the cancer tissue removed, the pathologist will say that all of the growth has been removed and that the microscope does not show any cancerous tissue on the outside of the growth. In my opinion the microscope cannot show tissue which has been invaded and which has not yet shown pathologic changes that the microscope will reveal. I saw this thoroughly demonstrated in a case in which operation was performed a year ago.

Dr. John L. Jelks, Memphis, Tenn.: I am so pessimistic with regard to cancer of any part of the alimentary tract that I feel almost inclined to offer a resolution that it would be the sense of this assembly that late radical operations for cancer of the stomach and intestines are hardly warranted. I have operated and operated for cancers of the stomach, colon and rectum and the patients are all dead, or, if not already dead, going to die a little bit later of cancer of the liver. What is the use? I think it is best to turn the patients down. A number of men have said much could be done if we have "early cases." In the "early cases" the patients will not dream of having an operation and in the late cases we should not dream of operating.

Dr. Louis J. Hirschman, Detroit: I hope this paper will go out as a message from the enteroproctologist to the general surgeon and everybody doing surgery, to mark the passage of mutilating operations for the excision of a cancer; that the day of the sacral anus is over. I think the time has arrived when we must tell the profession at large that if they cannot do anything else than colostomize and implant the anus anywhere but at its normal site, they had better do nothing.

Dr. Jerome M. Lynch, New York: I am really sorry that my friend Dr. Jelks feels as he does; it is very unfortunate, for Dr. Jelks has many friends and a large following and the result will be that a great many patients with cancer who should be operated on will not be operated on. The statistics of Mayo and other men show that a great deal has been done in cancer.

Dr. Beach asked me for the tenure of life in these cases. Twenty-six per cent. of the patients are alive after three years (all these statistics will be published); two or three over sixteen years. When the average patient comes for operation he is over 50, and if he lives sixteen or seventeen years, he is going about the limit. So far as I can see, the results are very encouraging, and notwithstanding the pessimistic view taken by some surgeons, I shall still continue to perform these operations, and it will just mean holding the same position now that Samuel Sharpe held in 1820. Then he said, "Some men are so pessimistic about operation for cancer that they would rather let the patients die. In my own personal experience I have saved so many patients that I shall still continue to operate." It is almost 100 years since that time and we have the same obstructive pessimism to contend with.

MIXED INFECTION WITH THE PNEUMOCOCCUS IN EPIDEMIC MENINGITIS *

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In a recent communication, Netter and Salanier[1] report twenty-two instances of epidemic meningitis in which pneumococci as well as meningococci were found in the spinal fluid. These cases of mixed infection exhibited all the symptoms of meningococcic meningitis, but did not respond to serum treatment and terminated fatally. It is my purpose to call attention to the importance of these observations, and to report an example of this type of meningeal infection.

W. D., a boy, aged 7 months, entered the Cook County Hospital, Sept. 28, 1917, with all the physical signs of meningitis. According to the mother, the illness began suddenly two days before with convulsions, vomiting, stiffness and retraction of the neck, and a staring expression of the eyes. Otherwise the history was negative. The noteworthy physical findings were blindness, marked opisthotonos, orthotonus, and a positive Kernig's sign. The temperature was 103 F. and the pulse rapid and weak.

The spinal fluid was under increased pressure, opalescent, and contained 1,000 cells per cubic millimeter, 98 per cent. of which were of the polymorphonuclear type. Gram-positive and gram-negative intracellular and extracellular diplococci were present in the stained smears. The urine contained a trace of albumin and an occasional leukocyte, and the Wassermann test was negative. During the twenty days in the hospital, 185 c.c. of antimeningococcus serum were given intraspinally with no results. The temperature remained high and the child gradually became weaker and died, Oct. 18, 1917. A necropsy was not made.

During the course of the disease two bacteriologic examinations of the spinal fluid were made. In each instance a gram-negative and a gram-positive diplococcus were found in the cultures. The gram-negative organism had all the morphologic and cultural characteristics of the meningococcus, and was agglutinated by a polyvalent antimeningococcic serum in a dilution of 1:800. The gram-positive diplococcus was found to be a typical pneumococcus of Group I type. In the plate cultures of the spinal fluid in both instances, the meningococcus colonies were more numerous than the pneumococcus colonies. The spinal fluid had a faint greenish tint, and at no time was markedly purulent. Precipitin tests of the spinal fluid, in which the specific serums for both organisms were used, yielded negative results.

These observations emphasize the importance of frequent cultural examinations of the spinal fluid in all cases of epidemic meningitis, especially those in which antimeningococcus serum does not prove efficacious. Furthermore, they indicate that mixed infection may occur in meningococcic meningitis as in other infectious diseases, and exert an unfavorable influence on the clinical course. In the instance of mixed pneumococcus and meningococcus infection, combined serum treatment, as advocated by Netter, would be indicated. In regard to the general significance of this new observation in epidemic meningitis, it is sufficient to say that the importance of mixed infection in acute infectious diseases cannot be overestimated. The presence of two virulent organisms in the same pathologic lesion must not be neglected on the basis that one is a secondary invader; the activities of each organism must be reckoned with in the treatment.

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* From the Memorial Institute for Infectious Diseases.

[1] Netter and Salanier: Bull. et mém. Soc. méd. d. hôp. de Paris, 1917, 41, 789.

Military Medicine and Surgery

SHELL-SHOCK *

A DIGEST OF THE ENGLISH LITERATURE

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In the last three years, the neurologists and psychiatrists of the United States have viewed with interest the reports that have come to us from abroad regarding the remarkable war neurosis, shell-shock. While these papers excited our interest, it was not until our country entered the war that the problem became one that demanded our serious attention. At the present time, however, we ought to be fully acquainted with the data already accumulated by foreign workers in the three years of war; to be able to give successful treatment in the many cases that are sure to arise in our armies and, vastly more important, to gain a clear insight into the condition so that we may be able to exclude from our draft army at the time of enlistment the men most liable to shell-shock, and thus prevent "the wastage of the recruiting office," which has been such a burden to the European countries.

Moreover, the importance of the problem cannot be overemphasized. Osler,[1] in a recent communication, speaking of the neurasthenic as he appears at the recruiting station, says that the unfit should be checked at the recruiting office and kept at home; "the trenches is no place for a man with unstable vasomotors. In the strain of war they break like dry twigs and become a heavy burden in the hospitals and convalescent homes."

June 1, 1917, Dr. Thomas W. Salmon, in a letter to the National Committee for Mental Hygiene, wrote from London in regard to the shell-shock cases:

> The extent of these casualties is almost beyond belief. I have not yet had access to the official records, but apparently the neuroses constitute one of the most formidable problems of modern war. These people are certain to go to pieces in the presence of danger or hardship, and are not only useless to themselves but are also a serious drag upon their comrades and the army in general.

When one sees, also, the vast number of these patients collected in England in the various special hospitals devoted to their treatment, one cannot but realize that, if we, in this country, could only prevent such wastage, our work would be of inestimable value to the government. Therefore, in view of the importance of this problem, one feels fully justified in bringing to notice the work already done on the subject by British neurologists and psychiatrists.

SHELL-SHOCK

The term "shell-shock" came into use in the English army the latter part of 1914, but the first reported cases that I have been able to find in the English literature were by Myers[2] in February, 1915. He reported three cases under the term "shell-shock" with loss of memory, vision, smell and taste. He expresses the opinion that his cases "appear to constitute a definite class among others arising from the effects of shell-shock." Even at this early date it was found that the term "shell-shock" was a very loose one, and that many of the patients coming back from France to England in this group had never been "shocked" by the concussion of a shell, but had been buried under débris when the shell exploded; in some cases the patients had never been under shell fire at all. March 27, 1915, the *Lancet*, in an editorial, commented on the effect of shell explosion on the central nervous system, especially in its relation to the special senses, and thought that most cases would fall into one of three classes: fatigue-paralysis, "commotio," or traumatic hysteria. In other words, the numerous cases with protean symptoms of nervous disorder were being thought of from the etiologic standpoint, and the neurasthenia and hysteria cases were being separated from those of supposed commotion or concussion with probable organic brain changes due to trauma.

It was not, however, until February, 1916, that we had the first clear classification of the shell-shock cases. Mott,[3] the London neuropathologist, in a series of lectures on "The Effects of High Explosives Upon the Central Nervous System," divided his cases into three groups from the pathologic point of view:

1. The immediately fatal.
2. The wounded with injuries to the central nervous system.
3. The traumas to the central nervous system without visible injury.

The last group, according to Mott, forms the true shell-shock cases. Thus, from the pathologist's point of view, all cases are "commotio" with or without visible injury to the central nervous system. Shell-shock, however, as seen from the practical clinical point of view, includes all functional or obscure neurologic cases. In many cases now grouped as shell-shock, the patients have never been within the zone of active warfare. Henry Head,[4] in a protest against the use of the term "shell-shock," is quoted as having said that it represented "a heterogeneous collection of different nervous affections, from concussion to sheer funk, which have merely this much in common, that nervous control has at last given way. To me it would be just as reasonable to sweep up the various fruits which fall from the trees in a strong wind and then to discuss them without first stating that some fell from an apple and some from a pear tree."

A workable classification from the clinical point of view is that of Buzzard[5]:

1. Pure exhaustion cases. These were quite common in the early part of the war, but are rarely seen now.
2. Neuropaths and psychopaths, who develop shell-shock symptoms very early and quickly.
3. Martial misfits; the "objector," who hates war but goes because he must and often malingers.
4. Concussion cases.
5. Cortical injury, a few of which get into the shell-shock group by mistake.
6. Cases of hysteria who show the major and minor symptoms of hysteria as in civil life.

From this brief outline on classification and definition, it can readily be seen that the term "shell-shock" is a blanket diagnosis to cover all the traumas and disorders of the central nervous system without visible injury, occurring in modern warfare. The term is a poor one, and Eder,[6] in his latest book, has used the title, "War-Shock: The Psycho-Neuroses in War." He markedly limits himself, however, by defining "war-shock" as "hysteria occurring in a person free from hereditary or personal psychoneurotic antecedents, but with a mind more responsive to psychical stimulus than the normal." Such a narrow definition seems to me unpractical, as many cases other than these must be treated as shell-shock in hospitals devoted to the care of the neuroses of the war. An expression much employed lately is "war-strain," but this is lacking in not emphasizing the dominant rôle of the central nervous system. As shell-shock is now so widely used, it does not seem practical to change it. G. Elliot Smith[7] did not use either "war-strain" or "war-shock" in his book on "Shell-Shock and Its Lessons," and preferred "shell-shock" "as a popular but inadequate title for all those mental effects of war experience which are sufficient to incapacitate a man from the performance of his military duties." A new and excellent classification by Hurst[8] is too long to reproduce here. It is, by far, the best one that has been made.[9]

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* Read at the staff meeting, Boston Psychopathic Hospital, Oct. 17, 1917. The contents of this paper are based on observations made in England from May, 1916, to February, 1917, under grant of a Moseley Traveling Fellowship from Harvard University. Indebtedness is acknowledged to Sir William Osler and Dr. Frederick W. Mott for their kindness in making these observations possible.

[1] Osler, Sir William: War Wastage: A Note of Warning to Examiners of Recruits, The Journal A. M. A., July 28, 1917, p. 290.

[2] Myers: Lancet, London, 1915, **1**, 316.

[3] Mott, F. W.: Lancet, London, 1916, **1**, 331, 441, 545.

[4] Head, Henry: Lancet, London, 1916, **1**, 306 (quotation).

[5] Buzzard: Lancet, London, 1916, **2**, 1095.

PREDISPOSING CONDITIONS TO SHOCK

It has been found that in a large majority of cases of shell-shock the patients have a neuropathic tendency or inheritance. Some of Mott's patients "gave a history of either previous nervous breakdown or of a timid disposition, easily frightened, emotional, or afraid of the sight of blood; in a few, the fact was elicited that they had a fright in early childhood and that this recurred in dreams." In a case reported by Feiling,[10] the boy ran away from school at 13 because he was "tired of it," and also worked at various trades, at none of them apparently with any very marked success. In one of the best of the articles on shell-shock, Forsyth[11] says, "In all cases coming under the writer's notice with symptoms which were more than mild and transitory, a history of some earlier nervous trouble, slight or severe, was forthcoming." In twelve consecutive cases the following notes were elicited:

Nervous breakdown two years before.
Highly nervous and irritable.
Often depressed; worries over things.
Longish periods of depression.
Always been shy; still shy, though middle-aged.
Nervous breakdown four years ago.
Self-conscious.
Very depressed; worries unnecessarily.
Of nervous temperament.
Intensely self-conscious; married, but sexually impotent.
Highly strung and excitable since a child; violent tempered.

Later Forsyth says, "The occurrence of a definite neurosis is to be looked for only in psychopathic individuals, the onset representing the collapse of what is already psychically unsound."

Adrian and Yealland,[12] in a report on 250 cases, say:

> There are certain mental abnormalities which are present to some extent in nearly every patient. The majority of patients are below the average normal intelligence as judged by the Binet-Simon scale, and others who are more highly equipped prove to have an unstable history either personally or in the family.

Mott[13] again insists:

> Of even greater importance than the extrinsic conditions in the causation of military unfitness from exposure to shell fire are the intrinsic conditions, for if there is an inborn timorous or neurotic disposition, or an inborn or acquired neuropathic or psychopathic taint, causing a *locus minoris resistentiae* in the central nervous system, it necessarily follows that such a one will be unable to stand the terrifying effects of shell fire and the stress of trench warfare.

CONDITIONS AT THE TIME OF SHOCK

The conditions in the front-line trenches that put the soldier's nervous system "on edge" and sometimes are the sole factor in causing a war neurosis are intimated in a letter from an English officer to his mother, telling of his first experiences under shell fire:

> The shelling all day was awful. Before I had been in the trench three minutes, a bit of shrapnel made a clean cut in my breeches, only scratching the skin. The sights were awful, dead men all over the place, some half buried by shells. The ground and trenches had all been flattened out by our artillery fire, so there was hardly any shelter. I told the men to scratch themselves in with their entrenching tools, but it was simply a case of looking death in the face and waiting to be hit. Never for a moment did I expect to get out alive, as the shrapnel rattled all day long on my helmet, and of course the Boche might have counterattacked at any time. Many men got buried and had to be dug out. It was dreadful to see men's nerves give way and a man of 40 whimpering like a child and crying his soul out. Very catching this disease too, so I had to send him back. I never got into a smaller ball than I did that day, and of course the sights next one made eating impossible. When night came nerves got even worse, and there was hardly a man who was not shivering like a leaf. That day and night was a nightmare. It is the only time I ever felt the sweat of fear, but then it dropped off me in one continuous stream, as I thought in the dark my nose was bleeding.

From the foregoing note one gets a slight idea of active trench warfare. Mott[13] expresses it in this way:

> It must be obvious that through all the sensory avenues, exciting and terrifying impressions are continually streaming to the perceptual centers in the brain, arousing the primitive emotions and passions, and their instinctive reactions. The whole nervous system, excited and dominated by feelings of anger, disgust, and especially fear, is in a condition of continuous tension; sleep, the sweet unconscious quiet of the mind, is impossible or unrefreshing because broken or disturbed by terrifying dreams. Living in trenches or dugouts, exposed to wet, cold, and often (owing to shelling of the communicating trenches) to hunger and thirst, dazed or almost stunned by the increasing din of the guns, disgusted by foul stenches, by the rats and by insect tortures of flies, fleas, bugs and lice, the minor horrors of war, when combined with frequent grim and gruesome spectacles of comrades suddenly struck down, mangled, wounded, or dead, the memories of which are constantly recurring and exciting a dread of impending death or of being blown up by a mine and buried alive, together constitute experiences so depressing to the vital resistance of the nervous system, that a time must come when even the strongest man will succumb, and a shell bursting near may produce a sudden loss of consciousness, not by concussion or commotion, but by acting as the "last straw" on an utterly exhausted nervous system, worn out by this stress of trench warfare and want of sleep.

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[6] Eder: War Shock, London, William Heinemann, 1917.

[7] Smith and Pear: Shell-Shock and Its Lessons, Manchester, England, 1917.

[8] Hurst: Guy's Hosp. Gaz., 1917, **21**, 109.

[9] Mental Hygiene, 1917, **1**, 468.

[10] Feiling: Lancet, London, 1915, **2**, 63.

[11] Forsyth: Lancet, London, 1915, **2**, 1399.

[12] Adrian and Yealland: Lancet, London, 1917, **1**, 867.

[13] Mott, F. W.: Brit. Med. Jour., 1917, **2**, 39.

Forsyth[11] lays special stress on "the ghastly sights of carnage":

> These shake the self-control of all but the very strong, and when, as must often happen, a man sees his best friends killed or horribly mutilated, the anguish of his own feelings may unnerve him beyond control, even though, curiously enough, the effects may not be felt for hours or even days after.

From the psychologist's standpoint, the situation is interesting:

> At the time of the trauma, whether it is concentrated in a few moments or spread over days or weeks, the situation to be met derives its psychical importance from the fact that it involves the risk of death. Against this, the instinct of self-preservation rebels, employing as its weapon the powerful emotion of fear. And this, it is not superfluous to recall, is a natural emotion, and therefore ineradicable; its function, like that of its physical counterpart, pain, is protective, dictating an immediate flight from the danger arousing it. In face, therefore, of the prospect of sudden death, fear strains all its powers to enforce an escape, and it can be coerced only by a still more powerful effort of will.[11]

Just what happens at the precise moment of the shock is best shown by quotations from a few case histories. In one of Myers'[2] cases, the patient was not feeling afraid but "rather enjoying it" until the shells burst about him. While creeping under wire entanglements, some shells burst near him. "As he was struggling to disentangle himself from the wire, three more shells burst behind and one in front of him. Immediately after the shell had burst in front of him, his sight became blurred. At the same moment he was seized with shivering, and cold sweat broke out, especially round the loins." Another patient "was blown off a heap of bricks 15 feet high owing to a shell bursting close to him." Pemberton[14] relates the case of a sergeant of a battery of field artillery: "His gun was No. 1. A direct hit was made on No. 2 gun with a high-explosive shell, killing three men. I saw Sergeant ——— shortly afterward, and although naturally excited, he appeared otherwise normal. He went on working his gun until dawn next day, when he collapsed and was found lying across one of the disemboweled corpses." In Feiling's[10] case, a trench in which the patient was fighting was blown in and he was buried for twelve hours in a mass of mud and débris. Mott[3] gives the history of a captain as follows: "His whole company had been destroyed, and, while talking to a brother officer, the latter had half his head blown off by a piece of a shell." Another patient said: "There was something dropped into the trench. I think it was a shell. I felt myself go up into the air, but I cannot remember falling."

Forsyth[11] gives the following case to show how light trauma may be:

> The patient, after being for some weeks in France, where his battalion was completing its training, spent two nights, which were quiet ones, in reserve trenches. The following day, as his platoon was moving to the rear, a shell exploded close by, wounding several men, but killing none. He himself was unhurt, though he thinks some earth thrown up by the explosion may have struck his right arm. At any rate, on getting back to his billet, he found his right hand was weak, and the next morning he had lost the use of the right arm. When examined three weeks later, the limb was found to be paralyzed and showed marked involuntary movements, which had spread to the shoulder and right side of the neck. No organic cause of the condition could be found. Three months later the movements had ceased, but the arm was still weak.

RESULTS OF SHOCK: SYMPTOMS

1. *Loss of Consciousness.*—Most patients lose consciousness at the time of the shock, but many are only dazed or stuporous. The ones that die are usually unconscious from the time of shock. A condition of automatic wandering, like the fugue of an epileptic so vividly described by Marie, has been observed in some cases. Parsons[15] says, in a typical case "consciousness is lost for a variable time, but often not so far as to prevent automatic movements, so that the man may walk in a dazed condition to the dressing station."

2. *Amnesia.*—One of the most common symptoms of shell-shock is amnesia, or loss of recollection. Very few patients lose consciousness for anything but a short time, and the memory of many of the events during most of the period of trauma may be brought out in various forms of treatment. The temporary amnesia may be very severe and even complete. Mott[3] gives the history of a man who was blown up by a shell and who could not recollect any recent or past events. He did not recognize any coins or even his own written name. He rapidly improved and recovered completely. One of Myers'[16] cases is an example of retrograde amnesia:

> A private was found wandering in a neighboring village, clad only in his shirt and socks. "He was unable to give his name, regiment, or number. He thought his age was between 20 and 30. I tried him with various Christian names, but he replied that none of them seemed familiar to him. He could remember two men finding him as he was strolling on the outskirts of a village, and could describe everything that had occurred to him since then. There was no means of identifying him, and his past was a complete blank; he could recall nothing, for instance, of the events of his childhood."

Mott[3] gives another remarkable case, the treatment of which I shall give later in this paper. He writes:

> The patient's mind was a complete blank, and this condition was reflected in a dazed, mindless, masklike expression. When asked where he lived, he said, "W——"; he did not know it was in the West Riding. He did not know the address of his home; and when shown a letter from his father with the address on the top, he did not recognize it or his father's handwriting. When shown a photograph of his home, with a group of his father, mother, and three brothers in front of it, he maintained the same wondering, dazed expression, and failed to recognize the nature of the picture. His father had heard from a comrade that he had been buried by the explosion of a shell in the trench; that he had been unconscious for some time and lost his speech.

3. *Motor and Sensory Changes.*—Paralysis and disorder of gait are common symptoms. In 250 cases with some objective disorder, Adrian and Yealland[12] found 37 cases of monoplegia of the arm or leg, 46 of paraplegia, 16 of hemiplegia, and 18 of disordered gaits. The suggestion of an external injury is usually found in the history of these patients. The man who has fallen on his shoulder will have a monoplegia of the corresponding arm. Injury to the back often precedes paraplegia. The reflexes are normal or there may be an increase in knee-jerks with a spurious ankle-clonus. I cannot find that a positive Babinski sign has been reported in a purely functional case. The overaction of antagonistic muscles is quite remarkable, especially noticed in relation to gait. Batten[17] relates a case as follows:

> When first admitted and asked to walk, the patient grasped the top of the crutches and pulled the body up by the strength

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[14] Pemberton: Lancet, London, 1915, **1**, 967.

[15] Parsons: Lancet, London, 1915, **1**, 697.

[16] Myers: Lancet, London, 1916, **1**, 65.

[17] Batten: Quart. Jour. Med., 1915-1916, **9**, 73.

of his arms; he then placed each crutch alternately forward, allowing the whole weight to fall on the advanced crutch, and would advance the legs synchronously with the crutch. Later, when taught to walk in the walking-machine, he would support the weight of the body on the hands, dragging the hindmost leg forward against a resistance produced by placing all the antagonistic muscles into forcible contractions. At a later period he walked without the machine, but with the hinder leg as if it were glued to the ground, from which it could only be moved by the most violent tugging efforts.

The direct opposite of the glued-to-the-ground foot is the dancing tremor, in which the patient walks as if the legs were on springs of coiled wire.

The paralyses differ in no way from the hysterical paralyses of civil life. Extensive paralysis is the usual thing, a whole arm or leg. They are often associated with sensory changes. Myers[18] has made a special study of these, finding various disorders of cutaneous sensibility in about 25 per cent. of his patients. Mott[3] found in severe cases of shock "loss of sensibility to all forms of stimulus, pricking, heat and cold, and touch, also of deep sensibility, pressure of muscles, movement of joints, and bone sensibility to vibration of tuning-fork. Hyperesthesia is even more common than anesthesia, and even the lightest touch gives rise to apprehension and movement of withdrawal in severe cases."

Tremors and coarser rhythmic spasmodic movements are an extremely common symptom. Mott[3] gives an example of a gunner blown up by a big shell who was amnesic for fourteen days. He says: "When I examined him he was sitting in a chair; legs, hands, and jaw were in continuous coarse rhythmical tremors like those of paralysis agitans, which became exaggerated when he was spoken to. Every now and again he starts and looks upward and laterally, as if he feared a shell would drop on him." Fine tremors like those of exophthalmic goiter have been noted, and also tremors of the intention type; but most of them were coarse rhythmic tremors like those of advanced paralysis agitans. In one of Mott's cases, a former pugilist was terrified by the explosion of bombs dropped by a Zeppelin and "developed a curious tic, which took the form of jerky purposive movements of the shoulders and head, as if to avoid a blow, and facial grimaces such as a pugilist might assume in a fight."

4. *Dreams, Terror and Mental Changes.*—In shell-shock, the patients often suffer from terrifying dreams. These are associated with the manifestations of fear, such as terrified facial expressions, cold blue hands, feeble pulse and respiration, sweats and tremors. These dreams often take on the form of nightmares, during which a soldier will go through the pantomime of some terrible experience at the front. I have seen men stand up in bed, sweating and pale, continually shouting epithets at the invisible enemy, go through the pantomime of a charge "over the top," and a hand-to-hand or bayonet attack on the enemy. Mott[3] gives a case as follows:

> A captain, aged 20, was admitted under my care in a state of restless delirium; he moved continually in the bed, sat up, passing his hand across the forehead as if he were witnessing some horrifying sight, and muttering to himself; yet, when interrogated, he answered quite rationally. This motor delirium I associated with the continuous effects on the conscious and subconscious mind of the terrible experiences he had gone through.

Sometimes the terror leads to mania:

> A young man, aged 19, was admitted, suffering with shock due to emotional stress and shell-fire. He suffered with terrifying dreams, and after he had been in the hospital a short time, he developed sudden paroxysmal attacks of maniacal excitement. One afternoon he had been helping as usual in the kitchen, and then he went and lay down on his bed and apparently went to sleep; he suddenly awoke with a startled, terrified look, became flushed in the face, sweated profusely, and made for the door as if to get away from some terrifying conditions. He was restrained with difficulty. He remained in this excited state, glaring rapidly from side to side, giving one the impression that he was suffering from terrifying hallucinations of sight and hearing, although he would make no response to interrogation. He did not recognize his wife, the doctors, or the sisters. Once when I, accompanied by two medical officers in uniform (strangers), came up to speak to him, he became violently agitated, as if some terrifying conditions had been aroused by the sight of the uniforms; the face was flushed and he sweated so profusely that the perspiration dripped in a stream off his nose. The attacks would last from a few hours to a few days; they came on quite suddenly, like an epileptic fit, and often without any apparent cause. It may be mentioned that there was no obtainable history of epilepsy or insanity in the family. The case rather suggests the psychic equivalent of epilepsy in the attacks.

Mott noticed other points of interest in his patients. Many complained of a falling or sinking feeling; often in their dreams, patients were heard to cry out and would awake to find themselves in a cold sweat; some officers gave commands to their men and urged them on to battle; and some performed the pantomime of raising the gun to the shoulder and pulling the trigger.

The revival of old associations in shell-shock dreams is not uncommon. In one of Mott's cases, the patient would dream of meeting a leper in a mine passage. He had been alarmed previously by a leper in a South African campaign. A single predominating incident may be repeated again and again in these terrifying dreams. A soldier who had seen a legless body of a comrade at the front had many dreams in which a legless body was always the central figure.

5. *Special Sense Disturbances.*—(*a*) Vision: The usual disturbances are photophobia, with or without blepharospasm, "smoky vision," diminution in the visual fields, and amblyopia. The photophobia is not usually a serious or persisting symptom; "smoky vision" may last for months. Diminution of visual fields alone is common. Patients with amblyopia usually go to special hospitals. The first and best cases recorded are those by Parsons[15] early in 1915. Functional blindness is more common than deafness, loss of smell or taste. "On examination, it is found that there are intense blepharospasms and lacrimation. The lids are opened with great difficulty, and examination of the eyes is almost impossible in the early stages." The man is struck blind instantaneously. In two to three weeks blepharospasm diminishes. "The fundi appear to be absolutely normal. The pupils react to light, though in some cases the reactions are sluggish, and sometimes one pupil differs from the other, being larger or more sluggish in its reaction. By this time probably some restoration of sight has occurred, light is perceived and large objects may be distinguished. As improvement occurs, the patient manages to grope about, usually with his hands outstretched before him, but it is noteworthy that he does not usually stumble against objects in his path. As soon as it is possible to take the fields of vision, it

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[18] Myers: Lancet, London, 1916, 1, 608.

is found that they are markedly contracted, and that indeed to a degree which seems scarcely consistent with the avoidance of obstacles in walking. The recovery of vision is slow, but eventually it always seems to be complete."

In Pemberton's[14] case which I mentioned before, of the sergeant who suddenly collapsed twelve hours after seeing the gun-crew next to his hit, the amblyopia and contraction of fields was marked when first seen. There were many sensory and motor disorders, also.

(*b*) Speech: The speech defects most commonly noted are mutism, aphonia, stammering, stuttering and verbal repetition. Mutism is most common—about one in twenty, according to Mott. The patients cannot produce any audible sound; there is no sound when they attempt to laugh, try to whistle or cough. Most of these patients can write. "Many who are unable to speak voluntarily call out in their dreams expressions they have used in trench warfare and battle. Sometimes this is followed by return of speech, but more often not." Mott[3] continues, "This mutism is due to emotional shock; it is a psychic rather than physical trauma, in my judgment, for it in no way differs from the description of hysterical mutism thus given by Bastian." Anesthesia of the pharynx has been noted. Some cases will be quoted later, in the consideration of treatment.

(*c*) Hearing: Deafness often accompanies mutism or aphonia, causing the condition of functional deaf-mutism. "It is not at all infrequent for a man to be deaf on one side and not the other, and the history often shows in these cases that a shell has burst on this side of the man. Auditory hallucinations are not uncommon, and the patients complain of hearing the bursting of shells, of the noise of shells coming, of bullets whizzing, and of whistles blowing. Hyperacusis, or extreme sensibility to sound, is a common and very troublesome symptom, making the patient miserable and apprehensive." Mott found that many relapses occurred during a Zeppelin raid (on London), and one man, "a sergeant who had been a professional pugilist of great renown, suffered extremely, so that the noise of the click of billiard balls irritated him to such a degree that he would protest forcibly against the game continuing. His fellow patients found that they could easily cause him to flee by taking their slippers off and banging them on the ground sufficient to produce a sharp loud noise."

(*d*) Taste and Smell: Both are often affected, but owing to the difficulty of an examination which is so largely subjective, they are often omitted from the case reports. No very definite data could be obtained about them.

6. *Cardiovascular*.—"Patients often complain of palpitation, breathlessness on exertion, and precordial pain. There may be physical signs of dilatation and tachycardia. The pulse is often small and increased in frequency; the blood pressure is never high. It was often below 110, and never above 135. The hands are frequently blue or mottled and cold; and often there is cold, clammy sweating of the palms. The surface temperature may be very low; in one case it was only 16 C." (Mott[3]). Most of the patients with marked cardiac symptoms go to special hospitals. The complaints of these patients are: breathlessness, pain, giddiness, palpitation, and exhaustion on exertion. There are no physical signs of structural change in the heart. These are the cases of "irritable heart" that have received so much attention by Dr. Thomas Lewis and his colleagues at the Military Hospital, Hampstead, England.[19] In the broad sense these cases come under "shell-shock," as they are certainly functional disorders of the nervous system that are peculiar to modern warfare.

The vasomotor conditions are quite noticeable. Osler mentions the "men with unstable vasomotors" as unfit for the trenches. Excessive flushing and dermographia are quite commonly seen.

Headache is often a prominent symptom. Mott[3] says:

> The commonest situation for the maximum pain is the occipital region and the back of the neck; it is often described as a tight compression, like a helmet—the helmet of Minerva. The pain may be in the frontal region over one or both eyes, over the vertex, in one or both temples, or at the back of the eyes. The pain is variously described as burning, stabbing, or a heavy, dull, dizzy feeling, a feeling like a tight hat, or a red-hot wire being run through the temples. It is worse at night, especially upon lying down and trying to sleep.

NEUROPATHOLOGY

The neuropathology of shell-shock has received scant attention in the literature except for the work at Dr. Mott's laboratory. The reasons are quite obvious, as very few patients died at the hospitals except by chance of intercurrent disease, and those that die on the field are seldom examined postmortem. In the last year, however, more provision has been made for necropsies at or near the front, and by arrangement with the Royal College of Surgeons, London, certain brains are being sent back, properly preserved for future study. Dr. Mott[20] has been fortunate enough to secure a few of these, and his findings are of great interest. He first noticed the marked similarity between the brain of a soldier dead from shell-shock and the brain of a man dead from carbon monoxid poisoning. His study of carbon monoxid poisoning before the war led him to think that the main postmortem findings were extensive capillary hemorrhage in the brain, especially in the corpus callosum, the internal capsule, cerebral peduncles and centrum ovale.[21] Two cases were from carbonyl of nickel works. There was a case of suicide by illuminating gas. In the first case of shell-shock, a man had been buried by a shell blowing in a parapet, and had died two days later. No visible wounds were found on the body. Throughout the white matter of the centrum ovale, and especially in the corpus callosum, were multiple punctate hemorrhages. Mott[3] says: "This appearance to the naked eye corresponds to that which I have described in carbon monoxid poisoning. The same microscopic appearances were observed as those seen in coal gas (CO) poisoning, only the hemorrhages were more extensive." Apparently the fatal cases are the gas cases, as Mott has found the same appearance in later brains. These are the true cases of shell-shock with burial that form a very small part of the vast number of cases in men who return from the front with symptoms of a neurosis. Whether these also may have minor brain hemorrhages is problematical, but we may feel certain that many men who never got within the range of shells and yet develop brain symptoms probably have no such gross pathologic lesions. Most neurologists believe with Wilt-

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19. Heart, 1917, **6**, No. 4.
20. Mott, F. W.: Lancet, London, 1916, **1**, 331, 441, 545; Brit. Med. Jour., 1917, **1**, 637.
21. Mott, F. W.: Arch. Neurol., 1907, **3**, 246.

of his arms; he then placed each crutch alternately forward, allowing the whole weight to fall on the advanced crutch, and would advance the legs synchronously with the crutch. Later, when taught to walk in the walking-machine, he would support the weight of the body on the hands, dragging the hindmost leg forward against a resistance produced by placing all the antagonistic muscles into forcible contractions. At a later period he walked without the machine, but with the hinder leg as if it were glued to the ground, from which it could only be moved by the most violent tugging efforts.

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[18] Myers: Lancet, London, 1916, 1, 608.

on the hospital and its environment. At his beautiful institution outside of London, he has:

> Light airy wards, and day rooms for meals and recreation, plenty of single rooms for the isolation of cases that are troubled with noises or require special attention; and especially valuable are the baths, so that every soldier can get a warm or cold spray bath every day. The warm baths, and especially the continuous warm baths, are especially valuable for promoting the action of the skin, of relaxing the tired muscles, and by the soothing influences helping to induce sleep, so that less hypnotics are required to be employed.

In these ideal surroundings the patients are usually left to adjust themselves.

When indicated, mild suggestive and persuasive measures are used, as in the case of amnesia partly quoted. The story continues as follows:

> We heard from his father that he was a good musician, and I said to him, "G——, I hear you are a good musician," and I asked him if he could play the piano or sing; there was the same wondering, bewildered look, and he muttered something which was to the effect that he could not sing or play. Three days later I said, "Come, you can whistle 'God Save the King.'" He took no notice, but upon pressing him, he looked up and a glint appeared in his eyes, and he said "You start me." I whistled the first bar; he took it up and whistled it admirably. I then asked him to whistle "Tipperary," but he could not do it till I started him, and the same with several other tunes, but once started, he had no difficulty, and I recognized from the admirable intonation that he was, as his father described him, an excellent musician. I could not, however, that day get him to start upon his own initiative any one of the tunes he had whistled. The next visit, three days later, I observed that his expression had changed. He smiled when I spoke to him, and I recognized clear evidence of a mind that had partly found itself. He could not whistle by himself any of the tunes I had previously started him on when I called for them. [He relearned to play the piano by first having his finger held on the keys and a melody played.] The next time I came, he was able to play any music set before him. His associative memory and recollection of music were in advance of other associative memories. Thus, eight months after he had recovered his musical memory, he had very imperfectly recovered his memory of elementary facts regarding his profession as a land surveyor, and there was still a tendency to a vacant, mindless expression and prolonged reaction time as shown by delay and slowness in responding to questions, as if there were a difficulty in linking up the necessary associations.

Mott reports that about thirty-five cases of mutism have come under his observation, with recovery in all. Some of the recoveries take place under most amusing circumstances:

> In one case the patient "was sitting in his wheeled-chair playing baseball, at which he was quite good, when a runner overturned him; the sudden emotional shock and surprise made him exclaim aloud, and since then he has quite recovered speech." Strong faradic stimulation to the larynx in this patient had *not* resulted in phonation. Another patient "was in a punt and it was turned over, and he was capsized into the water, which made him shout out. Practically, he had been mute for more than eight months. He often shouted words in his sleep about trench warfare, so he must have had dreams but forgot them." This patient under the strong suggestion of removal of adenoids did not speak. In regard to a third patient, the following is told: "His fellow soldiers thought he ought to hear and speak, and they adopted energetic measures to make him shout out for help. Two of them leathered him with a slipper and then nearly throttled him. He struggled and shouted 'Stop it.'"
>
> One dreamed he was falling over a cliff, shouted out, and recovered his speech. A deaf-mute was heard to speak in his sleep. He was told of it by a comrade. He said, "I don't believe it."

Mott's summary of treatment is as follows:

> Be cheerful and look cheerful is the note that should ever be sounded to these functional cases. Sympathy should not be misplaced, although it should be shown to all these poor fellows who have a fixed idea of never recovering; it is not their fault, it is a real thing to them, and no one could be more grateful than these cases of functional nervous disability for cheery words. I use many of these cases that have recovered as object-lessons. I do not find hypnosis or psychoanalysis necessary or even desirable."

Forsyth[11] thus outlines his treatment:

> The only treatment during the acute stage comprises three items—physical rest in bed, mental quiet, and good food. A private room is best. "Noises of all kinds, indoor and out, are borne with intolerance and are harmful, especially if they are unexpected and even remotely recall the dreaded shell explosions." At first the patients should be left to themselves, without being disturbed by the taking of medical histories or conversation. "They must expect to pass restless nights with piercingly vivid dreams, for which even hypnotics are only palliative. Those with the mildest symptoms can safely be allowed to get up within a few days, gradually increasing this exertion, until perhaps in a week or a fortnight they can get away to the quiet of the country or the seaside; and in another six weeks they will probably be able, not indeed to return to the front, but to take up light duties at home."

Most patients need bed for three to four weeks or longer, followed by two or three months of quiet living. "Throughout the greater part of convalescence any indiscretion in the way of mental or physical exertion beyond the narrow margin of the patient's endurance at the time seems regularly to entail a setback out of all proportion to the extra effort."

The symptoms of depression of spirits, listlessness, taciturnity, desire for solitude, lack of confidence, poor appetite and sleeplessness are "best and most quickly relieved when the patient has been induced to talk freely of what is on his mind, the opportunity at the same time being taken to present his facts to him in their true light, together with the additional information he needs to form a just opinion of his conduct and to rehabilitate himself in his own esteem." Forsyth looks at the neurotic symptoms as in a case of everyday neurosis, a problem dealing with "the psychical development of the patient since childhood; and the further treatment must follow psychanalytical lines." A patient who has not been able to regain his self-control after three or four months is in need of extraneous help, that is, psychotherapy.

Rows'[26] treatment is along nonradical lines. He says that the patient's difficulty lies chiefly in the fact that:

> He has little or no insight into the nature and mode of origin of his mental illness. This insight can be provided by explaining to him in plain language the mechanism of simple mental processes, by enabling him to understand that every incident is accompanied by its own special emotional state and that this emotional state can be reawakened by the revival of the incident in memory. The patient will thus be led to see that it has been no gross disease and no supernatural agency which has disturbed him; he will be able to recognize the relation of cause and effect in the origin and development of his illness. When this relation is appreciated, both the patient and the physician will begin to realize that they have some ground in common. The physician should

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[26] Rows: Brit. Med. Jour., 1916, 1, 441.

be prepared to give at least an hour for an interview, and in most instances several interviews will be necessary.

The value of psychanalysis as a form of treatment has caused much controversy in England. Adrian and Yealland[12] believe it to be very valuable as a form of treatment for the state of mind of the patient which has allowed a fixed idea to develop. The fixed idea itself that gives rise to the functional symptom or paralysis, loss of speech, etc., is best treated by suggestion, but at the basis of this is a state of mind that will not vanish by these methods. They say that the patient minus his symptoms "will always be liable to develop hysterical troubles in moments of emotional stress and exhaustion, just as a man with a malformed chest will be liable to attacks of bronchitis." This is borne out by the number of patients returned from the front with a remission of symptoms after apparent recovery. Psychanalysis, in their opinion, will "cure not only the hysterical symptoms but also the hysterical mentality." If the repressed desire is "unearthed and explained to the patient, the repressed conflict will vanish, and with it not only the hysterical symptom but also the state of mind which made this symptom possible." Practically it takes too long a period to use psychanalysis on the average shell-shock patient, and it can be used only in special hospitals. One must therefore treat symptoms during the war and leave this longer method for more leisure moments.

Eder[23] also thinks psychanalysis valuable but not usually expedient in war time. He, however, uses it "for purposes of diagnosis or with a view to helpful suggestion in most cases."

One of the most important problems in the early part of 1915 was the question of sending the apparently cured patients back to the front. Those that went back proved useless as soldiers in front-line trench duty, for they broke down again either on the way to France or soon after reaching the trenches. Forsyth's views are that "with an increasing experience of these cases a very strong doubt rises as to the judiciousness of sending any cases of nerve-shock, with few exceptions, back to the firing line." If the patient knows he will not return to trench warfare, he makes a more rapid recovery. Forsyth thinks that these patients should be kept in England on light duty because of the following points:

1. Their untrustworthy memory (one of the last symptoms to disappear), by leading them to forget to carry out orders or to forget when they have carried them out, may entail the miscarriage of plans.

2. Their example may infect those around them with irresolution or even worse.

3. When the strain becomes severe, they will almost certainly break down a second time.

The hospital building and its surroundings are important in the treatment of war neurosis. The English War Office has arranged two exceptionally fine hospitals for officers,[27] one on a quiet street in London, of thirty-three plain bedrooms with gray walls, without pictures or ornaments. Here the patients are received from France and given from three to four weeks of a modified Weir-Mitchell treatment of absolute rest in bed in quiet surroundings. When somewhat recovered, they are removed to a large country house, where they remain for six weeks or longer and receive the treatment that has been outlined above.

For the soldiers a complete series of hospitals has been inaugurated.[28] There are two "clearing hospitals" of 500 beds for all neurologic patients, including those with functional paralysis, disturbances of speech, amnesia, mutism, deafness, amblyopia, motor agitations, nervous debility, mild neurasthenia, simple mental confusion, anxiety psychoneurosis, simple mental depression, etc. The treatment here consists of rest, proper feeding, massage, electricity, baths, psychotherapy, simple suggestion and occasional hypnosis. From these two hospitals about 40 per cent. return to light duty, 20 per cent. are invalided, and 20 per cent. are transferred to special institutions.

Of these special institutions there are two of about 550 beds, mostly with single isolated rooms. No new patients are sent here, but only those transferred from the neurologic hospitals. Here are treated severe neurasthenia, mild psychoses, profound amnesia, epilepsy and mild primary dementia. The treatment consists of rest, proper feeding, recreation and massage. Psychanalysis is used in selected cases. About 40 per cent. of these patients return to light duty.

There are also two hospitals of 700 beds for certificable mental patients. From 10 to 15 per cent. of these return to light duty.

PROPHYLAXIS

What can the Medical Corps of the United States Army do toward the prevention of shell-shock? Obviously it must be checked at the recruiting station or in the cantonment camps before the men leave for France. There ought to be no question in the minds of the medical officers as to the advisability of checking this condition at the source, for no one who has seen the results of modern warfare on the unstable mind can do otherwise than urge such measures with his utmost vigor. It becomes the duty of each medical examiner to weed out from the recruits such men as are liable to shell-shock. By so doing, an enormously important advance will be made in our army, as judged by the experiences of the other armies of the Allies.

We have been strongly advised by Osler to check the enlistment of the neurasthenic. It is obviously difficult to pick him from the crowd, "as he may come up in good form" and be eager to go overseas. But it is not so difficult with the mentally deficient, the "queer stick," the "boob," and the butt of the practical jokers. He is soon observed and noted by both officers and men, and if he is singled out and talked with for five or ten minutes one ought to have no difficulty in deciding his fitness for active trench warfare. One ought also to look especially carefully into the past history of the depressed, the man who worries unnecessarily, the self-conscious, the shy, the high-strung, excitable man, the violent-tempered, the nervous, the timorous, the easily frightened, or the neurotic individual. Any or all of them may make poor first-line-trench soldiers. The task is a difficult one, but that in itself should not prevent our trying. What an advantage it would be to our army officers, and what a saving of life it would mean to our men, if the shell-shock patients could be eliminated from our forces that will fight overseas! Such utopia is probably impossible, but I feel confident that careful weeding out of the mentally unstable will certainly greatly reduce the numbers of shell-shock cases that are bound to appear in our casualty lists.

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[27] Lancet, London, 1915, 2, 1155.

[28] Turner: Lancet, London, 1916, 1, 1073.

THE WILD RATS OF THE SOUTHERN STATES AS CARRIERS OF SPIROCHAETA ICTEROHEMORRHAGIAE *

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In order to preserve the health of the large number of men now being trained in the various cantonments, it is essential that we recognize the sources of infections to which they may be subjected. This applies particularly to infectious jaundice, a disease with which many of the medical officers and civilian physicians are not familiar.

Infectious jaundice is not a new disease, as Cleghorn reported an epidemic in Minorca in 1745, and Larry, while he was with Napoleon in Egypt, in 1800, observed an epidemic near Cairo. In the Civil War, 22,509 cases were reported among the Northern troops, with 161 deaths. Epidemics were also observed among the Bavarian troops in the France-German War in 1870, and the disease has been epidemic for many years in Japan. A small epidemic was reported in North Carolina in 1900, and Barker described a series of cases which he observed in the city jail in Baltimore, in 1909. The case which we observed here in Nashville was in the service of Dr. O. N. Bryan, in the Vanderbilt University Hospital, and is the first so far as we can discover that has been reported from this section of the United States.

In view of the trench training that is now being given to the soldiers at the various Southern camps and the possibility of their being subjected to infection from the rats that frequently infest these places, we thought it important to determine whether or not the wild rats of the South harbor the *Spirochaeta icterohemorrhagiae*. The present report deals with the results of this investigation.

The etiology of infectious jaundice has been attributed to many bacteria, but none of these has been shown to bear a definite relation to the disease. In 1914, Inada, Ido and their associates[1] succeeded in transmitting the infection to guinea-pigs by intraperitoneal injections of blood taken from patients suffering from the disease, and noted the presence of large numbers of spirochetes in the blood and in the organs of these animals. Later, the same observers found a similar spirochete, which they termed *Spirochaeta icterohemorrhagiae,* in the blood and organs of human patients dying from the disease. During their investigations, made to determine the source of the infection, they found that wild rats harbor the *Spirochaeta icterohemorrhagiae,* and that the majority of persons affected were those whose occupation brought them into more or less intimate contact with places infested with these animals. The work of the Japanese observers has been confirmed in various parts of Europe, particularly in the war zone, and Noguchi,[2] in this country, found that the spirochetes were present in the wild rats in New York City.

With the object of determining whether or not the wild rats of this locality harbor the *Spirochaeta icterohemorrhagiae,* we examined a large number caught in different places in Nashville.

The rats were alive when brought to the laboratory. They were killed with chloroform, the hair was moistened with alcohol, and the kidneys were removed with precautions to insure asepsis. One kidney from each animal was made into an emulsion in saline solution and injected into the peritoneal cavity of a guinea-pig. The remaining kidney was prepared for microscopic examination. Levaditi's method was used to demonstrate the spirochetes in the organs.

More than a hundred rats were examined, and of these at least 10 per cent. harbored the *Spirochaeta icterohemorrhagiae.* These rats were obtained from different parts of the city, and so far as can be determined the various localities have given about the same proportion of infected animals.

The guinea-pigs that developed the disease usually died from the twelfth to the fourteenth day following inoculation. Jaundice of the sclera and of the mucous membranes became very marked before death, and postmortem examination revealed a yellowish discoloration of the subcutaneous tissues and of nearly all the internal organs. In addition, there were many small hemorrhages scattered through the subcutaneous tissues, and particularly in the inguinal and axillary regions. The spirochetes were demonstrated in the urine with the India ink method, and were readily found in the kidneys from the infected rats and in those from the inoculated guinea-pigs that developed the disease. These sections were stained by Levaditi's method. The virulence of the organism increases rather rapidly, as shown by the short duration of the disease when material from infected guinea-pigs is injected into others. These animals die in about half the time required for those inoculated direct from the rats.

From the foregoing it will be seen that about 10 per cent. of the wild rats of this community harbor the parasite causing hemorrhagic icterus, and as Noguchi has shown that the rats about New York City are also infected, it is probable that similar conditions apply in many sections of this country. The importance of these observations becomes more evident when we consider the trench training that is now being given to American soldiers in the various camps. Here we have duplicated in many ways the conditions that make possible the large number of cases now being reported in France and Italy, and our demonstration that the rats of the South harbor the parasites of this disease makes it obvious that all possible means should be used in the camps to eradicate these pests. It has been shown that the virulence of this organism for guinea-pigs increases rapidly when transmitted through several series of these animals, and we must not forget that the same thing may occur when the organism becomes acclimated to human beings. This would seem to explain the high mortality of 38 per cent. noted in Japan, where the disease is more prevalent; while in Europe, where fewer cases have been observed, the mortality is much less.

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[1] Inada, Ido, et al.: The Etiology, Mode of Infection and Specific Therapy of Weil's Disease (Spirochetosis Icterohemorrhagica), Jour. Exper. Med., 1916, **23**, 377.

[2] Noguchi: Hideyo: Jour. Exper. Med., 1917, **25**, 755.

Insurance for Parturients.—The Italian government, it is announced, has arranged a system of insurance for parturients in wage-earning families. At childbirth each mother receives 40 lire ($8) from a fund to which for each person insured the state gives 12 lire annually, the employer 1.25 lire and the insured 1 lire.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

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SATURDAY, NOVEMBER 24, 1917

THE HEART'S ACTIVITIES

The movements of the mammalian heart are so rapid and the performances of its various parts follow each other in such rapid succession that they call for delicate methods of registration and study. Many of our readers can easily recall the variety of recording apparatus that furnished the data in the early work of Chauveau and Marey, and in the investigations of many of their successors. Recording levers and tambours played a conspicuous part. Gradually they were made lighter and more delicate; yet such mechanical devices left much to be desired.

The introduction of electrocardiography has marked a decided step in advance. The real starting point was perhaps represented by the investigations of Burdon-Sanderson and Page in 1878 with the capillary electrometer on the tortoise heart. Waller in London initiated this mode of investigation on man a few years later; but, as Lewis[1] remarks, it was in the present century that Einthoven, in Holland, perfected an instrument which, on account of the facility of its working and the precision of its movements, has enabled us to unveil much that was formerly mysterious. This instrument is the string galvanometer, and its construction must rank as an outstanding milestone in the study of the questions that we are considering. The electric current and the sensitive photographic plate have contributed in an unanticipated way to the solution of many difficult problems in the physiology and pathology of the heart.

What are some of the acquisitions to science derived through these studies, particularly as they have been combined with elaborate investigations of the minute morphology of the heart? Lewis, himself a skilled experimenter in this field, offers this explanation for the development of two sets of chambers in the heart: an upper one "frail and thin-walled"; the lower "sturdy and massive." The function of the auricle, he concludes, is not to fill the ventricle, as is so commonly taught in elementary classes. The blood pumped from auricle to ventricle at the end of the heart's diastole is only a fraction of its full content. The function of the auricle is to save the veins from overdistention. During a third of the ventricular cycle, during the period when the ventricle is pouring blood into the body, the circulation is completely obstructed at the auriculoventricular orifices. Yet the blood flow in the veins continues; the flow goes on into the expanding auricles. The mechanical function of the auricle is that of a reservoir, to catch and hold the content of the stream when a dam is thrown across it. It wants little strength for this task; its walls must stretch easily; they have to pump against a low resistance; the muscle layer is therefore thin.

The spread of the contraction wave from the mouth of the great veins to the auricular mass as a whole, Lewis continues, is expedited by the central position of the node from which the wave starts, by the architecture of the muscle bands that radiate from it in all directions, and, lastly, by the relatively high rate of conduction that auricular muscle possesses.

In traveling through the auriculoventricular node, the contraction wave meets a long delay in its progress while the auricle is emptying itself. Thereupon it spreads to the bundle, a structure of fibers endowed with conducting fibers of the highest order, with the result that all parts of both ventricles are thrown into contraction with the closest approach to simultaneity. Hence, too, the mechanical advantage of the ventricle as a driving power.

THE EFFECT OF RANK ON THE DUTIES AND RESPONSIBILITIES OF THE MEDICAL OFFICER

The importance of the medical officer in the armies engaged in war, as indicated by the rank and authority given him, is less highly esteemed in this country than in any other, including both our allies and our enemies. Medicine has accomplished great triumphs in the armies of Europe. Under unprecedentedly difficult conditions, sanitation has been so ably maintained that both morbidity and mortality from the infectious diseases are less today in the military than in the civilian population of the warring nations. In the British Army, 80 per cent. of the wounded have been returned to duty. The number of hospitals in France reaches into the hundreds, and for the most part their equipment is excellent. Scientific laboratories are carrying on practical research investigations. Chemists are finding antidotes for the multitudinous poisonous gases turned on by the Germans, and are discovering new compounds to be used offensively. Within twenty-four hours after the first discharge of chlorin by the Germans, not only had the nature of the gas been determined and an antidote found, but protective masks were being made; and within ten days the Germans were being treated with the more deadly phosgen. Indeed, scientific studies made at the front saved the armies of Great Britain and France from complete annihilation. Rehabilitation hospitals in which the badly injured are supplied with artificial limbs and other devices are working successfully and converting the apparently hopelessly maimed into productive, self-supporting citizens. In fact, these institutions constitute one of the great triumphs of military and conservative medicine. Every wounded and sick soldier can be instantly located and his condition reported to his friends. In this way the discontent arising from anxious waiting for news is avoided. There has been no breakdown in the medical service in the great armies of Europe, as has been the case so often in the past and with us in 1898. When a son is killed in battle, parents seek and find consolation in the proud knowledge that he has died fighting for his home and his country; but when he is wounded or sick and dies from neglect, there is no consolation, and in the most patriotic soul a bitterness against those in authority develops.

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[1] Lewis, Thomas: Upon the Motion of the Mammalian Heart, Croonian Lecture, Proc. Roy. Soc., B, 1917, 89, 560.

All this and much more might be said concerning the efficiency of the medical service of our chief allies. What is the explanation of its efficiency? The answer is that the medical officer is given support backed by rank and authority. A line officer in the British Army hesitates a long while before he rejects the advice of his medical colleague, because that colleague has rank and authority commensurate in some degree at least with his own, and is recognized as his superior in the special line of work. Compare this with the record of the congressional inquiry into the conduct of the War Department in the war with Spain, when, according to his own testimony, the commanding officer at Chickamauga in 1898 ostentatiously drank from a well condemned by his medical officer, while his hospitals were filled with typhoid fever patients. We have gone into this war with the medical officer invested with no more authority than he had in 1898. Is it unreasonable to ask if we are to repeat the experiences of that time? However, we are told that the line officer of today is much wiser than his predecessor of twenty years ago, and since he makes this statement himself, we must give it credence. We certainly hope that it is true. It is the duty of the medical profession to protest against this condition. The medical men of this country are not slackers, as is shown by the fact that more than one seventh of their total number have voluntarily offered their services to their country, notwithstanding the failure of those in authority to give the reasonable recognition asked. We have asked for increased authority, and in the Army this can be secured only by high rank, because when a medical man goes into the service the government puts its stamp on him just as it does on the coin of the realm; and 30 cents will not buy a dollar's worth of anything. So far the protest has fallen on deaf ears.

Medical men will play the game and do their duty, whatever may be the verdict in this matter; but it should be clearly understood that they are going into the game under a heavy handicap. They will do the best they can; but if discontent should arise from poor or poorly prepared rations, if respiratory diseases prevail as the result of overcrowding, if pneumonia becomes widespread because barracks are not heated and soldiers are not warmly clothed and amply provided with blankets — if all these things happen, the medical officer will continue to do the best he can under the conditions, but he will not be responsible for the conditions.

PULMONARY VENTILATION AND THE CARBON DIOXID OF THE BLOOD

The renewal of the air in the lungs, with which the blood exchanges its gaseous constituents, is brought about by muscular movements, which are under the control of the nervous system. When it was discovered that the functioning of this regulatory mechanism was in large part dependent on the chemical composition of the blood reaching the respiratory center, the natural tendency was to ascribe the stimulation of the latter to a fall in the oxygen tension in the circulatory system. It is now understood, however, that until the oxygen tension falls very decidedly, no noteworthy change in the ventilation of the lungs takes place so long as an increase of carbon dioxid tension is prevented. The classic investigation of Haldane and Priestley, reported in 1905, has demonstrated in a convincing way that the total volume of air sent in and out of the lungs in a unit of time by the respiratory movements is regulated by the carbon dioxid tension of arterial blood, which is the same as that of the alveolar air of the lungs. Subsequently, Haldane and his co-workers showed, in 1913, that the alveolar oxygen pressure can be varied within wide limits without sensibly affecting the excitability of the respiratory center to carbon dioxid.[1]

Whether certain types of clinical dyspnea are due, primarily, to retained carbonic acid, rather than to other acids formed in metabolism, has frequently been asked by those engaged in the study of acidosis in its relation to pathologic symptoms. The difficulties in answering this question have been due in part to the lack of suitable methods for the detection of very small deviations from the normal in the composition of the blood. Indirect methods, such as the determination of the alveolar carbon dioxid and the total carbonate concentration of the blood, have become popular in the study of the interrelations between the composition of the blood and the respiratory exchange. In the physiologic laboratory of the Western Reserve University School of Medicine, Cleveland, Scott[2] has noted in that ammonia is liberated in the muscle or other body cells and carried to the liver to undergo there a final synthesis to urea. One step in the exclusion of conflicting hypotheses lies in direct observations on the possibility of urea formation by self-contained enzymes in muscle. Such an investigation has been undertaken by Hoagland and Mansfield[1] in the Bureau of Animal Industry at Washington. The results of their studies of the products of autolytic change in aseptically removed portions of muscle tend to show, as they themselves express it, that urea formation is not an important function of muscular tissue. In view of the well established fact that the liver plays an important part in the formation of urea in the body, they add, these findings lend support to the view that urea production is chiefly a function of that organ. In the light of current evidence they give added weight, though in a very indirect way, to the view of Van Slyke and his co-workers that the liver plays the chief part in the breakdown of the amino-acids, without denying to other tissues the possession of similar power of promoting metabolic change.

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[1] Campbell, J. M. H.; Douglas, C. G.; Haldane, J. S., and Hobson, F. G.: The Response of the Respiratory Center to Carbon Dioxid, Oxygen and Hydrogen Ion Concentration, Jour. Physiol., 1913, **46**, 301.

[2] Scott, R. W.: The Effect of the Accumulation of Carbon Dioxid on the Tidal Air and on the H-Ion Concentration of the Arterial Blood in the Decerebrate Cat, Am. Jour. Physiol., 1917, **44**, 196.

Current Comment

THE ARMY HOSPITALS OF FIFTY YEARS AGO

At the present time when every noteworthy contribution of modern medical science may be expected to be put to the test of usefulness in the plans of the Army medical organization, the task of meeting a great emergency successfully is almost certain to leave unfulfilled possibilities exposed to the ubiquitous critic. To those on whom devolves the responsibility for the major part of the effort of suddenly providing for the sanitary and medical needs of a vast group of fighting units it may be comforting, if not helpful, to learn something of the fire of criticism through which the United States Army has passed in former days in respect to its barracks, hygiene and hospitals. A notable instance has lately been described by Dr. Fielding H. Garrison[2] of the Surgeon-General's Office in a review of the scientific work of the late Dr. John Shaw Billings. In 1870 and 1875, Billings made two reports to the Surgeon-General which have become classic, as far as our military establishment is concerned. In a drastic criticism of the barracks and hospitals of "the best fed and worst housed army in the world," Billings described the pictures of United States Army hospitals in the report as "simply inserted as ingenious modes of 'how not to do it'." There is vigorous opposition to the false economy which results in "a saving in boards and brick at the expense of the health of the soldier." Of more immediate interest today, however, is the substance of the constructive advice for improving the health and personal well-being of the enlisted man. Garrison has thus summarized Billings' suggestions, given in 1875: Bath tubs and shower baths, abundant space and good ventilation in quarters, a ration at least 25 per cent. in excess of what is required, plenty of ice at southern posts, lime juice and baking powder for scouts, canned tomatoes when fresh vegetables are not available, are recommended as novelties; and it is especially urged that the chief cook at a post should be a permanent detail, in place of the custom at that time of changing company cooks every ten days; that schools for instruction of cooks should be established at recruiting stations, and that a manual of cookery, with dietetic tables and culinary directions for all climates and seasons should be prepared. The report concludes with timely observations on the ventilation, hygiene and avoidance of infection in the military hospitals. Today the "novelties" here recommended have become the "staples" of hospital routine; but there is an ever-recurring abundance of new problems that demand novel solutions, and perhaps some old defects that deserve exposure. To these a new generation of trained scientists and devoted men is giving its best intellectual efforts.

ADULTERATED IMPORTED DRUGS

In times of stress, it is often feared that our food and drug laws will not be vigorously enforced. It is gratifying, therefore, to note the regulatory announcements of the Department of Agriculture[1] concerning action against and detention of certain drug imports. A recent issue reports that examinations of samples of belladonna root, *Atropa belladonna* L., disclosed adulteration with roots of yellow dock, *Rumex crispus* L. Some importations of cantharides (Spanish flies), *Cantharis vesicatoria*, had been adulterated with "so-called Chinese blister flies belonging to a species of *Mylabris*." The department found cinchona barks offered for entry under names recognized in the U. S. Pharmacopeia, but deficient in alkaloids. A number of other less used drugs also were illegally labeled. Efficient government protection along these lines, especially during the war, is of benefit to the public, and is appreciated by the medical and pharmacal professions.

JERSEY VERSUS HOLSTEIN

The most striking differences between well selected dairy cattle with respect to their milk production are those attributable to the breed. It is literally true, of course, that beside breed and individuality, the period of lactation, the season of the year, feeding, care, and completeness of milking may affect the composition of the milk. Liberal feeding and exceptional care bring their reward in the form of an increased yield rather than a permanent change in the character or proportions of the ingredients of milk. We are not prepared to draw on ourselves the fire of the advocates—and they are in each case both enthusiastic and formidable — of the superiority of any of the well known breeds of dairy cattle by appearing as the champion of some rival breed. Both the Jerseys, at one extreme of the list, yielding milk containing nearly 15 per cent. of solids, including over 5 per cent. of fat, and the Holsteins, at the other extreme, with a more abundant supply of milk averaging only about 12 per cent. in solids and 3.5 per cent. in fat, have their champions for public favor. The average weight of a Jersey is from 800 to 900 pounds, and of a Holstein, 1,200 pounds. The comparison of large and small cows is thus involved. A person with judicial temperament and motives of strict economy might be inclined to estimate the cost of the important items relating to the milk production of each breed and thus form a judgment in the matter. Precisely this has recently been attempted at the Ohio Experiment Station[1] with results that seem, strange as it may appear on hasty consideration, to justify the propaganda of both breeds. In an exhaustive study of the economy of production of dairy cows from the feed consumed, it was found that the Holsteins, when the feed alone is considered, are able to produce milk more economically throughout the entire lactation period. The difference in economy of producing solids is not greatly in favor of either breed, although the Jerseys have a slight advantage. The Jerseys have a decided advantage, however, in the economy of producing fat. If the averages for each breed for the entire lactation period are used and the Jerseys are considered 100 per cent. efficient in producing milk, solids and fat from the digestible nutrients consumed, the Holsteins were 116.5 per cent. efficient in producing milk, 93.4 per cent. efficient in producing solids, and 74.5 per cent. efficient in producing fat. This indicates that the cows yielding high-testing milk produced solids and fats more economically than those producing low-testing milk, and also that the Jerseys gave in their product a larger return of digestible nutrients for each pound of digestible nutrients consumed than did the Holsteins. Where milk is sold by measure, that is, by the quart, regardless of quality differences, the volume is an important item. From this point of view it was found that the Jerseys consumed 163 pounds of dry matter and 106 pounds of digestible nutrients, and the Holsteins consumed 140 pounds of dry matter and 91 pounds of digestible nutrients for each hundred pounds of milk produced. It is not often that all parties to a controversy can find a morsel of satisfaction in the decision of the conflicting claims.

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[1] Hoagland, R., and Mansfield, C. M.: The Function of Muscular Tissue in Urea Formation, Jour. Biol. Chem., 1917, **31**, 487.

[2] Garrison, F. H.: The Scientific Work of Dr. John Shaw Billings. National Academy of Sciences, Biographical Memoirs, 1917, **8**, 385.

[1] Service and Regulatory Announcements, No. 21, U. S. Dept. Agric., Nov. 12, 1917.

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[1] Grady, R. I.: Economy of Production by Dairy Cows, Ohio Agric. Expt. Sta. Month. Bull., 1917, 2, 334.

THE EFFECTS OF WAR ON MEDICAL RESEARCH

One of the significant effects of the war has been the turning of the attention of laboratory workers from some of the intricate, complex and wholly technical problems of research to those of immediate practical utilization and clinical bearing. These problems include efforts to secure new wound dressings; to discover serums or antitoxins to control the spread and the course of infections; to determine the causes and to discover means of prevention and treatment of those little understood conditions peculiar to the war, such as shell-shock, trench fever, trench foot, etc., and finally, to improve the methods of treatment of the common surgical conditions particularly associated with modern warfare. It is difficult to estimate today precisely the value of the procedures that have been adopted or the theories that have been advanced. The claims made for many of them, in some cases associated with an unfortunate sensational publicity, undoubtedly cause those easily swayed to form a too optimistic opinion. The meritorious virtue of some of the remedies has been lost in the clap-trap or mystery that surrounds them. Usually the value seems to reside in some already well known substances or procedures. While it is not to be regretted that enthusiasm and praise should be attached to the work of those engaged in actual warfare, overenthusiasm and false values should not be allowed to influence the opinions of scientists in an estimation of the procedures associated with the medicine and surgery of the war.

SKIN DIPHTHERIA

At Richmond, Va.,[1] during September, October, November and December, 1916, skin lesions that were at all suggestive of diphtheric infection were swabbed, and cultures were made. Also there was a wholesale swabbing of sores of all sorts. Out of 191 swabs examined, thirty-four were positive for diphtheria. This represents 17 per cent. of positive cultures, as compared with 23 per cent. positive during the preceding year. Pure cultures were isolated in eleven cases, all from schoolchildren, no two of whom were in the same family, although several attended the same school. Virulence tests in seven cases were positive. Each culture was grown on broth for about a week at 37 C. (98.6 F.) and then injected subcutaneously into the abdomens of two guinea-pigs, one of which received antitoxin. In no instance were there serious after-effects in the animal given antitoxin.

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[1] Annual Report, Richmond, Va., Health Department, 1916, pp. 87, 94, 95.

For Prenatal Instruction.—The Department of Health of New York City has organized a special corps of nurses to instruct, advise and guide mothers during pregnancy in all matters pertaining to the health of themselves and their offspring and to aid in the reduction of the number of stillbirths. It is found that over 40 per cent. of the deaths of children under 1 year of age in New York City are due to congenital diseases; almost 37 per cent. occur during the first month, and three quarters of these during the first ten days. Eighty per cent. of all deaths occurring during the first months of life, and 90 per cent. of deaths during the first ten days of life, are due to congenital diseases, congenital deformities and malformations, inanition, marasmus, prematurity, accidents of labor, atelectasis, infection and hemorrhage of the cord, Winckel's disease, etc. The nurses arranged for are to be assigned to the infant welfare stations, and will be assisted in the prenatal work by the regular nurses of those stations. It is hoped that the physicians will avail themselves of the services of these nurses to the fullest extent.—*Weekly Bulletin*, New York City Department of Health.

Medical Mobilization and the War

TYPHOID VACCINE SUPPLIED BY ARMY MEDICAL SCHOOL

Between April 1 and November 1, the Army Medical School Laboratory, Washington, D. C., shipped 8,843,047 cubic centimeters of typhoid and paratyphoid vaccine for use by the Army and Navy. Enough typhoid vaccine was shipped to vaccinate 1,051,604 men; enough of the paratyphoid "A" and "B" vaccine to vaccinate 777,352 men. Since July 1, a triple vaccine, including typhoid and paratyphoid "A" and "B," has been manufactured and enough of this has been shipped to vaccinate 1,489,902 men.

DIRECTORS FOR MEDICAL SERVICE WITH AMERICAN EXPEDITIONARY FORCES

Major John M. T. Finney, M. R. C., U. S. Army, has been appointed director of general surgery with the American Expeditionary Forces in France; Major Hugh H. Young, M. R. C., director of venereal, skin and genito-urinary surgery, and Lieut.-Col. Joseph Siler, M. C., U. S. Army, director of the laboratory service.

Major John M. T. Finney, professor and head of the department of surgery in Johns Hopkins Medical College, went to France as head of the Johns Hopkins Hospital base hospital unit which was among the first to be ordered to active duty abroad. He was born in 1863 and graduated from Princeton in 1884, and from the Harvard Medical School in 1889.

Major Hugh H. Young, head of the department of urologic surgery and professor of urology at Johns Hopkins University, was ordered to active duty in France in June, 1917, to investigate the establishment of a urologic service. He was born in 1870, graduated from the University of Virginia in 1893, and received his medical degree from Virginia in 1894, and from Johns Hopkins University in 1895.

Lieut.-Col. Joseph Siler is especially noted for his research on tropical diseases and pellagra, particularly with the McFadden Pellagra Research Commission. He was born in 1875, and graduated from the University of Virginia in 1898.

DISEASE CONDITIONS AMONG TROOPS IN THE UNITED STATES

Extracts from Telegraphic Reports Received in the Office of the Surgeon-General for the Week Ending Nov. 9, 1917

1. Total Strength of Troops 1,042,225
   Admission rate per 1,000 (disease only) ....annual 1,236.5
   Non-effective rate (all causes) 31.1
2. National Guard—strength (camps) 369,148
   Admission rate per 1,000 all camps (disease only)..annual 1,517.3
   Non-effective rate all camps (all causes) 38.9

Camps showing admission rate for disease higher than average: Camps Bowie, Wheeler, Kearney, Sevier, Shelby and Cody.

Camps showing non-effective rate all causes higher than average: Camps Bowie, Wheeler, Sevier, Kearney, and Shelby.

3. National Army—strength (camps) 428,788
   Admission rate per 1,000 all camps (disease only) ..annual 1,139.9
   Non-effective rate all camps (all causes)................ 25.2

Camps showing admission rate for disease higher than average: Camps Pike, Jackson, Funston, Travis, Dodge, and Dix.

Camps showing non-effective rate all causes higher than average: Camps Pike, Funston, Jackson, Lewis, Dodge, Travis and Dix.

4. Venereal Disease—
   Admission rate Regulars 83.5
   Admission rate National Guard (camps) ....annual 151.5
   Admission rate National Army 115.3

Camps National Guard having rate above average: Camps Kearney, and Wheeler.

Camps National Army having rate above average: Camps Sherman, Travis, Dix and Jackson.

5. Number of cases of pneumonia 346
   Highest number in any one camp (Pike).................... 76
   Number of cases of meningitis 32
   Highest number in any one camp (Funston).................... 9

6. SPECIAL DISEASES REPORTED DURING THE WEEK ENDING NOV. 9, 1917

Division	Pneumonia	Dysentery	Malaria	Venereal	Paratyphoid	Typhoid	Measles	Meningitis	Scarlet Fever	Strength of Command
27th, Wadsworth..	1	...	...	44	...	...	....	...	...	32,085
28th, Hancock.....	...	...	...	38	...	1	2	...	...	28,781
29th, McClellan....	2	...	...	19	...	...	4	...	...	26,495
30th, Sevier........	12	...	1	45	...	...	693	2	...	27,207
31st, Wheeler......	34	1	6	93	...	...	740	...	...	21,747
32d, MacArthur..	1	...	...	23	...	...	27	...	2	26,513
33d, Logan.......	1	1	10	66	...	...	1	...	...	28,084
34th, Cody........	6	...	...	34	...	...	18	...	5	25,854
35th, Doniphan....	16	...	2	17	...	...	73	2	...	25,566
36th, Bowie........	39	...	12	61	...	1	1147	...	...	25,858
37th, Sheridan.....	2	...	...	29	...	...	25	...	...	24,238
38th, Shelby.......	11	...	3	46	...	...	254	...	...	24,613
39th, Beauregard..	4	...	8	27	...	...	113	...	...	11,377
40th, Kearney.....	15	...	...	502	...	...	29	4	1	23,903
41st, Mills.........	2	...	...	30	...	...	19	...	2	14,538
76th, Devens.......	1	...	...	29	...	...	5	...	...	30,194
77th, Upton.......	2	...	...	14	...	...	....	...	...	26,366
78th, Dix..........	...	1	...	56	...	1	....	...	...	19,410
79th, Meade.......	...	...	...	15	...	...	....	...	...	32,365
80th, Lee..........	4	...	1	63	...	...	1	1	...	34,686
81st, Jackson.....	11	3	10	357	...	...	370	...	...	15,414
82d, Gordon......	5	...	...	38	...	...	28	1	...	21,427
83d, Sherman.....	9	...	1	128	...	...	3	2	2	35,058
84th, Taylor.......	5	...	...	27	...	3	154	6	...	27,579
85th, Custer.......	4	...	...	15	...	...	28	...	1	15,587
86th, Grant........	6	...	...	21	...	...	6	1	...	26,249
87th, Pike.........	76	1	6	28	...	...	683	2	...	23,358
88th, Dodge.......	8	...	...	14	...	...	3	...	...	22,377
89th, Funston.....	24	...	...	19	...	...	64	9	...	29,821
90th, Travis.......	28	...	6	107	...	2	....	...	...	30,540
91st, Lewis.......	1	1	1	18	...	...	3	2	3	28,177

	Regulars, U. S. Army, in U. S. only, 1916		Regulars in U. S. week ending Nov. 9, 1917		Nat'l Guard, All Camps, week ending Nov. 9, 1917		Nat'l Army, All Camps, week ending Nov. 9, 1917	
	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Admissions, diseases only, annual rate per 1000	....	613	....	840.4	....	1517.3	....	1139.9
Pneumonia.........	....	2.59	22	5.4	147	20.7	184	22.3
Dysentery..........	....	3.97	4	0.9	2	0.2	6	0.7
Malaria.............	....	12.52	8	1.9	42	5.9	25	3.0
Venereal...........	....	91.00	535	83.5	1076	151.5	951	115.3
Paratyphoid.......	....	0.31	....	......	....	......	....	......
Typhoid...........	....	0.21	....	......	2	0.2	6	0.7
Measles...........	....	20.29	143	35.6	3203	451.2	1356	164.4
Meningitis.........	....	0.29	....	......	8	1.1	24	2.9
Scarlet fever.......	....	0.59	16	3.9	10	1.4	6	0.7

7. Deaths by causes: Pneumonia, lobar, 35; bronchopneumonia, 6; cerebrospinal meningitis, 20; cerebral abscess, 1; cerebral syphilis, 1; cerebral tumor, 1; cerebral hemorrhage, 1; encephalitis, 1; hemoptysis following emphysema, 1; empyema, chronic, 1; pyemia, 1; endocarditis suppurative, 1; endocarditis, septic, 1; embolism of mesenteric artery, 1; angina pectoris, 1; measles, 1; edema of lungs, 1; alcoholism, acute, 1; delirium tremens, 1; asphyxiation, accidental, 1; accidental drowning, 1; traumatism, 3; traumatism by firearms, 5; traumatism by cutting, 1; fracture, base of skull, 3; poisoning, type undetermined, 1; suicide by phenol poisoning, 1; suicide by strychnin poisoning, 1; suicide by hanging, 1, and cause not reported, 1.

Medical Military Information.—A list of pamphlets of interest to medical officers of the Army will be found on advertising page 28 of this issue.

THE CAMP GREENLEAF SCHOOL OF MILITARY HYGIENE

Within the past year we have become interested in the efforts of the State Board of Medical Examiners of Pennsylvania to arouse interest in universal training in hygiene as a requirement for candidates seeking license to practice medicine.

The Pennsylvania board made this a practical fact by securing a state law which prohibits the licensing of a physician to practice medicine in that state unless the applicant has had a practical camp course in military hygiene. The bill provides, however, that this requirement is waived if the government of the United States fails to provide the necessary course.

When this camp opened, June 1, 1917, one of the ambitions of its commandant was to found a school of military hygiene on such a firm basis that it would last, not only for the period of the war, but for all time. A tiresome recital of disappointing setbacks and tribulations would profit little, and the announcement that the school is now in full operation, built on a foundation of permanent proportions, is the fact that we wish to set forth. The school has already begun to accumulate valuable property, such as microscopes, selected microscopic specimens, models of apparatus, books and pamphlets. In addition to this, arrangements have been completed to publish in full the valuable lectures delivered in the class rooms.

These lectures are in large part delivered by members of the student body, many of whom are specialists in some particular branch of sanitation. The school is a school plus a clearing house of knowledge. It is amazing to find how much talent drifts into these camps, and it is believed that the accumulated work of the attendants and instructors, published in book form, will make a valuable contribution to the literature of the country.

At the close of the camp, the literature and property, scheme of operation, and all other matter connected with the school, including models of sanitary apparatus, will be presented to the world's greatest sanitarian, the Surgeon-General of the Army, with the expressed hope that it may be found practical to make it a permanent benefit to the country.

A description of the school, written by the director, follows:

The Camp Greenleaf School of Military Hygiene has for its object the intensive training of Army surgeons in the field of camp sanitation.

The basic curriculum of the school comprises didactic and practical instruction on such fundamental subjects as camp sites, draining; approved methods for the disposal of kitchen, human and animal waste; the necessity for the sanitary policing of barracks and surroundings; water supply, quality, quantity and approved methods of purification; the inspection of the mess, and mess kitchen, including the food, its mode of preparation, the means for preservation, general cleanliness, and prevention of waste; insects as nuisances, sleep disturbers and transmitters of disease; the cycle of development of the common insects, and the approved methods used for the suppression of insects; the transmissible diseases and the approved methods for their control, including isolation, disinfection and prophylactic vaccination; the diseases of camp life in the several seasons, and military administrations. The sanitary clinics are an essential feature of the instruction. These complement the didactic teaching. They are entirely practical field work. Convenient groups of student officers are assigned for duty on problems involving drainage, road construction, insect abatement, conduct of picket lines, construction and care of latrines, disposal of waste, mess kitchen inspection, construction and care of the various types of incinerators and grease traps, water purification and storage, administrative work, etc. Their work is under the critical supervision of the staff of instructors.

In addition to the foregoing routine instruction, lectures are given on cognate subjects by the staff and student members of the school. Such lectures are given in the barracks occupied by the school and only to the class in hygiene. The character of the lectures by the student officers varies with the men available in the school at the time. To illustrate: Since the school was organized, lectures have been delivered by members of the class on the following, among other subjects: pellagra; malarial fever; vaccine therapy; fleas and disease; rat proofing of buildings; customs of the service; paper work in the Army; rural sanitation; hookworm; running a mess; duties of a quarantine officer; ship disinfection; military map making (with practical work in the field); amebic dysentery; refuse disposal; typhus in Serbia; the Kentucky closet; routine work in Panama; operation of sewage disposal plants; yellow fever; first aid in sanitation; causative factors in epidemics; special quarantine measures; building disinfection (a demonstration); hygiene of ventilation; water purification; sanitation in building construction; details of sanitary inspection; military map reading.

The instruction in the school of hygiene is given in hours that do not conflict with the general instruction given to the entire student officer body, and members of the school are required to attend such instruction as well as the special instruction given in the school. While in the school of hygiene, the student is relieved from military drill, but no student officer is assigned to the school who has not had at least two weeks of such drill, and the plan, therefore, does not materially interfere with the training arranged for student officers. As with other instructional departments of the camp, quizzes are held regularly by officially appointed instructors, and the students are graded according to the progress made in the work. Weekly records of such grades are made.

Class work, Medical Officers' Training Camp, Fort Riley, Kan.

The staff of instructors comprises Major Alexander C. Abbott, M. R. C., director, and Capts. William K. Evans, M. R. C., and M. L. Todd, M. R. C., assistant directors.

There are fifty students. The course of instruction covers four weeks from the date of assignment, unless it is obvious at the end of the first week that the student, for various reasons, is not adapted to sanitary work. In that event he is transferred to the company from which he was assigned, and another is detailed in his place. In the immediate future, the number of students of the company will be increased to 100, with a corresponding increase in the staff of instructors. As a saving of time, only students of Grade B and up will be assigned to the company.

Throughout, the instruction is as practical as possible, the student officers' camp, the outlying organizations, and the surrounding camps serving as excellent object lessons.

Henry Page, Colonel, U. S. Army.
Commandant, Camp Greenleaf, Fort Oglethorpe, Ga.
Alexander C. Abbott, Major, M. R. C.
Director, Camp Greenleaf School of Military Hygiene;
Director, University of Pennsylvania Laboratory of Hygiene.

NEWS OF THE CANTONMENTS

Twenty-Eighth Division, Camp Hancock, Augusta, Ga.

During the past week, Captain Roux, specialist in orthopedics, has been visiting our camp and lecturing on military feet and shoes. Proper exercises in bending the ankles outward and rising on the toes were described for weak feet; dressings and modifications in shoes were described also.

The entire division is being trained in the use of the gas mask, under the direction of Captain Stone and Lieutenant Russell. Cardiac, tubercular and nerve specialists are sifting out men with defects.

The course of instruction for medical officers is comprehensive and will require considerable time for completion. We hope to complete courses in litter bearing, first aid, pack mule drills, etc., on field day. It is also planned to have an original medical article competition for medical officers.

Thirty-Fifth Division, Camp Doniphan, Fort Sill, Okla.

The arrival of 3,000 drafted men by way of Camp Funston, among whom were several men with measles, has unfortunately increased the morbidity statistics for Camp Doniphan. Two cases of cerebrospinal meningitis also promptly developed among the new arrivals, and twelve carriers were found among contacts. All were immediately placed under rigid quarantine, and it is hoped that the situation will be controlled.

The care of the sick unfortunately is still handicaped by the fact that the new base hospital, with the exception of a few wards, is not yet ready for occupancy. Construction work, however, is being pushed with all energy, and it is hoped that within two weeks a considerable number of the wards of the new institution will be ready.

LYCEUM WORK

Lyceum work under the able direction of Lieut.-Col. W. T. Davidson is progressing satisfactorily and is widely appreciated. Meetings are held Monday, Wednesday and Friday evenings. The Monday meeting was devoted to the reports of the special examining boards. Capt. Ralph Brown, for cardiovascular diseases, reported on the examination of 15,000 men since September 15, with forty rejections. Capt. Brown briefly classified the classes that come up for observation under the headings, first, myocardial; second, valvular; third, functional. The first group is practically eliminated in the type of men that come up for examination; most cases fall within the last two groups.

Lieutenant Little of the tuberculosis board reported that his board had rejected 0.03 per cent. out of 15,000 men examined since the board began its work here in September. The number of these rejections, he said, is likely to increase as the facilities for examination improve. At present the work has to be done under considerable difficulty, and does not permit of the refined diagnoses possible under the best circumstances.

Lieut. Thomas Heldt of the psychiatric board reported on the work of his board. Since September 4, 15,000 cases were examined, with 1 per cent. of rejections. The type of cases were found in the following order of frequency: mental deficiency, constitutional psychopathic state, psychoneuroses, nervous disease and injuries (including the epilepsies), inebriety (alcoholism and drug addiction), and psychoses.

Wednesday's meeting was devoted to short talks by the chiefs of staff of the base hospital. Major P. B. Connelly, in charge of the base hospital, briefly explained the organization and present facilities of the hospital, and assured the men of the field of his heartiest cooperation through the personnel of his command.

Major J. Barksdale, chief of the surgical staff, called special attention to the need for careful examination of men complaining of "pain in the belly." Too often these cases prove to be appendicitis, which is brought to operation under a serious handicap. He cautioned against the administration of purgatives in cases of suspected appendicitis. The records of the surgical department give a splendid showing with 389 operative cases since September, 150 of which represent major work, with but one death.

Major Sidney Strauss of the department of internal medicine discussed briefly the symptomatology and diagnosis of the diseases encountered at this camp thus far. He urged that all patients with a temperature of more than 100 F. should be transferred to the hospital.

Major Magruder of the eye, ear, nose and throat department called attention to the relatively large number of disease carriers (diphtheria and Vincent's angina) that were found among those referred to his clinic. He advised that men with chronic middle-ear infection should be recommended for discharge, since surgical interference cannot improve them for service in the Army.

Major G. C. Ruhland, in charge of the laboratories, spoke briefly on methods of securing and transmitting specimens for laboratory diagnosis.

Lieutenant Hoffmeier, roentgen specialist, and Lieutenant Woods, dermatologist, also spoke briefly on matters relating to their specialties.

Friday's meeting was given over to a paper on camp sanitation by Major Phillips, chief sanitarian of the division surgeon's staff. Major Phillips admirably covered the essentials of camp sanitation and hygiene; his paper was received with a great deal of interest and was profitably discussed.

The discovery of a second case of anthrax, also occurring on the patient's face, suggests the possibility of anthrax infection from shaving brushes, and special attention is being directed toward this possible source of infection.

PERSONAL

Colonel Lewis of the Regular Army and Major N. M. Black, M. R. C., have arrived in camp on an inspection tour of National Guard and Army camps.

Lieut.-Col. Robert Carswell of the Regular Army has arrived and has taken charge of the administration of the post hospital.

Thirty-Ninth Division, Camp Beauregard, Alexandria, La.

Many changes in the Medical Department of the camp have taken place. Many more troops have arrived; there are now more than 20,000 here, and the number of medical officers has increased to over 100. Owing to the fact that 9,000 draft men have been sent here from Camp Pike, who brought with them from that place the remains of a rather extensive epidemic of measles of a mild form, and furthermore owing to the fact that these men are distributed throughout the various organizations of the camp, a rather rigid quarantine is in force. Two field hospitals are now in operation, one taking care of the measles and the other one handling the mumps of the camp. This relieves the base hospital of congestion and allows it to take care of the more seriously ill.

Col. Henry C. Fisher, M. C., inspector from the Surgeon-General's Office, spent two days here making a general inspection of the entire medical department, including the sanitary conditions.

On November 12, Captain Gephart of the Surgeon-General's Office visited the camp on a tour of inspection in the interests of food conservation.

Captain McMillan of the Surgeon-General's Office made a tour of inspection on November 15, in the interests of the venereal work of the camp.

The entire body of medical officers of the camp was invited to attend a meeting of the Rapides Parish Medical Society on November 6. (It will be noted that the term "parish" is employed in Louisiana instead of "county.") The meeting was held in the city hall, and about fifty medical officers and about fifteen local civilian physicians were present. Mayor Whittington of Alexandria told the officers that the city administration would give them every possible aid in sanitary matters, and was roundly applauded. P. A. Surg. H. S. Smith of the United States Public Health Service, who is in charge of the sanitation of the extra-camp area, gave a very interesting talk on the work he and his assistants are doing. Contract Surgeon Wright of Monroe, Ia., who has been on the tuberculosis board, told of his experiences with the intravenous administration of quinin in malaria. Short talks were also made by Colonels Smart and Schauffler, and Majors Lull, Burrus and others. After the meeting the guests and their hosts adjourned to the banquet hall of the Hotel Bentley where a delightful supper was served which was thoroughly enjoyed by all.

BASE HOSPITAL NOTES

The base hospital has been running in full swing for some weeks and there are now about 400 patients quartered there.

The laboratory is exceedingly well equipped and excellent work is being done. One deficiency is that it is not equipped to perform the Wassermann test. Specimens of blood and spinal fluid for this test are sent to the department laboratory in Atlanta, Ga., and from five to seven days elapse before a report is returned. This causes a great deal of inconvenience, and it is hoped that before long the base hospital will be equipped and authorized to perform this test.

Only two cases of epidemic cerebrospinal meningitis have developed in camp. Both are being treated in the base hospital.

The operating pavilion was opened recently and already several operations, both major and minor, have been performed.

The venereal section occupies two wards and has been practically full for some time. Only the acute cases are kept for treatment, all chronic cases being returned to their commands for treatment in the regimental infirmaries. A large percentage of the patients contracted the diseases before coming to camp, and it is thought that as soon as all of the troops have arrived and have settled down to the routine of intensive training the venereal rate will drop materially.

Lieut. Adrian Landry, who was home on a month's sick leave, recently returned greatly improved in health. He has been assigned to the laboratory.

Seventy-Seventh Division, Camp Upton, Yaphank, N. Y.

Undoubtedly the most important medical event that has taken place in Camp Upton during the past month has been the removal of the base hospital from its temporary barracks to the new hospital unit. This group of some seventy buildings is located about two miles from the camp proper, so that the transportation of patients from the camp to hospital and back affords considerable valuable practice for the ambulance companies, which undertake the major part of this work.

The hospital is not finished, and but twelve wards are completed and occupied. The quarters for the enlisted men are practically completed, and though not yet supplied with steam heat, they are reasonably warmed by stoves. The men are supplied with assembly rooms, a point that thus far has been utterly neglected in the officers' quarters, which are not yet ready for full occupancy. Most of the officers, for the time being, are lodged in the receiving pavilion. It is much to be regretted that no provision has been made in the hospital for an assembly room for officers in which a library and rest facilities are provided, but we are informed that this matter is to be considered favorably later, and that ample provision has been made for standard medical books and journals.

The pleasure of moving into the new unit has been greatly dampened by the edict, which applies alike to patients, enlisted men and officers, that there is to be no smoking in or about the hospital unit. That such a ruling is absolutely necessary in buildings of this type, and particularly in the unfinished state with much inflammable material lying about, is obvious; but the lamentations of Moab for her children was joyous beside the wail that has gone up from the base hospital, and during off moments the surrounding roads are crowded with disconsolate men and officers seeking solace in the weather outside plus nicotin, rather than relative comforts inside minus tobacco. It would seem too much to expect that optimism should reign within the walls of the hospital at such a time of famine, but none the less the spirit that seems to imbue the men of the staff is anything but depressed.

The messing facilities in the unit are as yet incompletely developed, but are quite adequate for the immediate needs of the service. Luxuries, in the way of crackers, cookies, jellies and preserves, are being contributed in great generosity by the women of New York and particularly by those of the adjoining towns. It is notable, as compared with former occasions, that contributions of this nature are almost without exception sensible and well adapted.

INSTRUCTION OF HOSPITAL STAFF

Courses of instruction of the base hospital staff are being conducted, mostly by the members of the staff under the immediate direction of Major Jay D. Whitham, while that of the medical organizations within the camp proper are under the control of Lieut.-Col. Reynolds. These courses cover military-medical subjects, and paper work—which is so very needful in all military establishments—in addition to the usual professional work and subjects. After the hour of evening instruction, a short session of clinics is conducted, cases of particular interest being brought in, demonstrated, and discussed by the members of the various services.

DISEASE INCIDENCE

Comparison with the sick percentage of the other National Army cantonments shows that Upton is particularly fortunate in nearly all particulars. Our relatively low rate of venereal infections has excited considerable comment, and those cases of this class reporting at the regimental infirmaries and at the base hospital, with few exceptions, are instances contracted before entering the military service. Stations for venereal prophylaxis under the command of the medical staff of Upton, and attended by the men of the hospital detachment, have been established in New York and Brooklyn. Similar measures are contemplated for certain of the villages nearer the encampment. Through these, and the full instruction of the men of the command, it is hoped to obviate any serious problem in this respect.

EXAMINATION OF RECRUITS

Much of the time of the medical staff of the main camp is still occupied in the examination of recruits. A careful tabulation of this work is being kept by Lieutenant Freeman, which affords some very interesting data. Forty-two medical men working at one time have been able to examine on an average of 267 men per hour, including the special examinations, which frequently consume much time. The staff of examiners is working in three shifts of from four to five hours each. They are assisted by a total number of 180 enlisted men. The total staff of examiners consists of eighty-four regular examiners and nine specialists.

Defects in vision have been by far the most frequent cause for rejection at Upton; chronic purulent otitis media has been the second most frequent factor, hernia the third, organic heart disease the fourth, and defective and deficient teeth the fifth.

DISTINGUISHED GUESTS

Distinguished medical visitors to the camp have been Colonel Shaw, inspector of base hospitals; Colonel Reynolds of the Surgeon-General's Office, best known to us as brother of "our" Colonel Reynolds; Dr. Davenport, the distinguished biologist, who has assisted us regularly in certain of our examinations, and Major E. K. Dunham, whose researches on water purification, and in association with Dakin of the chlorin methods of disinfection, are promising such flattering results. Several days ago Major Flexner of the Rockefeller Institute paid the camp a brief visit. Major Webb, commandant of the Bellevue Hospital Unit, and Major Leon T. Le Wald, instructor in roentgenology, both retired officers of the regular service who have generously reentered at this time of crisis, are guests at the base hospital. Dr. Glentworth Butler and Dr. Tasker Howard of Brooklyn have been working as cardiovascular experts with us, and their return home is much regretted by us all, in both personal and professional respects.

Eighty-Fifth Division, Camp Custer, Battle Creek, Mich.

Special instruction and preparations are being formulated by the division surgeon for the rapid and complete examination of the increment of the draft that is expected this week. It is expected that the entire work of examination will be completed in two weeks. Special arrangements have been made by the division surgeon so that all medical officers will be given an opportunity to become familiar with the paper work necessary in handling these examinations.

During the last week courses for instruction for all medical officers have been progressing rapidly. Captain Donnelly and Lieutenant Drowne have been giving talks on the medical paper work and that pertaining to the Quartermaster Department, respectively. Majors Bremerman and Jackson, directors of field hospitals and ambulance companies, gave practical talks relative to their special work.

Major Wood, commanding officer of the base hospital, has arranged for special instructions three evenings a week. This consists in the work of medical organizations in actual combat, in reports on military surgery as found in the various medical journals and in clinics held by the officers of the base hospital on cases of military interest. The evening classes have proved of exceptional merit and are attended practically by every medical officer in camp.

NOTES

Capt. Constantine MacGuire, commanding officer of the Three Hundred and Thirty-Seventh Ambulance, was relieved from duty at Camp Custer and ordered to report at Camp Mills.

Major J. F. Edwards has reported as chief sanitary inspector to fill the vacancy left by Lieut.-Col. W. A. Powell, who was ordered to Camp Devens.

Major Lewis Wine Bremerman, director of field hospitals, addressed the Kalamazoo Academy of Medicine, November 13, on the subject, "What the Medical Profession Owes the Country." There were about thirty-five members present. The meeting was preceded by a luncheon in honor of Major Bremerman.

A board of experts on tuberculosis has arrived in camp and their work of examining all men in the camp is progressing rapidly.

Lieutenant Tyner of Field Hospital No. 339 is absent in the East on a five-day leave of absence. It is understood that he may have a bride with him on his return.

Lieutenant Morris of Field Hospital No. 338 is on leave, visiting in Detroit.

The rate of venereal disease is decreasing remarkably in this camp. Last report showed 1.85 per cent. covering all forms of disease of this character. These facts speak well for the moral standing of the division.

Eightieth Division, Camp Lee, Petersburg, Va.

BASE HOSPITAL NOTES

The hospital is nearly completed, and the operating rooms are in such a state of completion that they are used daily for all kinds of operative cases. The successful opening of the operating room is due, in a great measure, to the untiring energy of the operating room nurse, Miss Byrnes, whose originality and adaptability have hastened its opening.

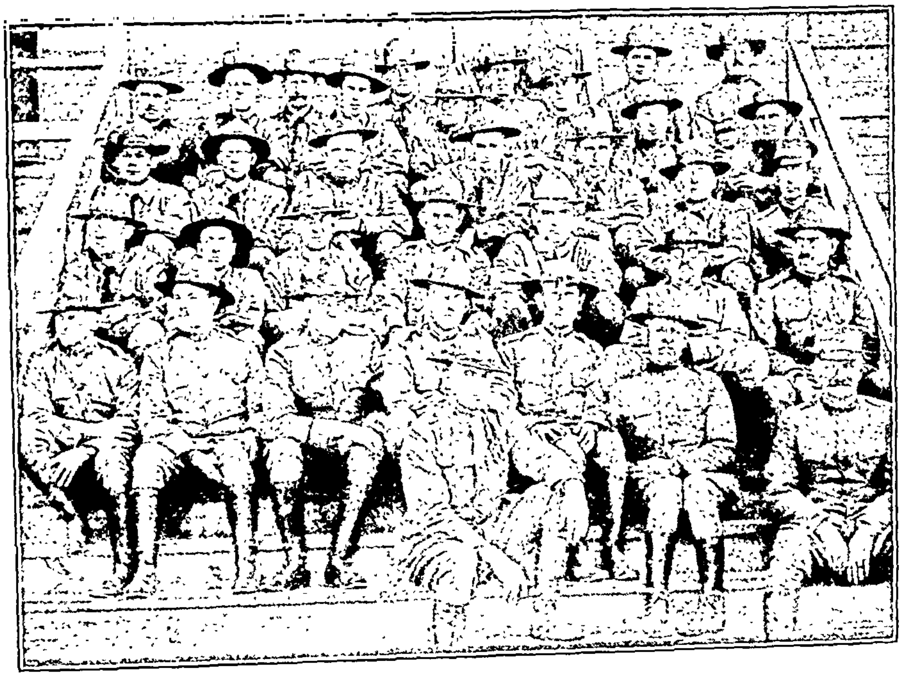
The force of nurses who are to care for the hospital patients is augmented from day to day by new arrivals; thus far they number twenty-six. About seventy-five are expected when all have reported.

There are some queer bed fellows in the receiving ward barracks, now temporarily occupied by the base hospital surgeons. Lieut. J. J. Beaton, M. R. C., made a hurried and undignified exit from his bed at 1 a. m., bringing with him all the bedclothes and a 6-inch slider terrapin (*Pseudemys rubriventris*) that some thoughtful friend had deposited in his bed earlier in the evening. The evening recital of yarns by the noted liars is still kept up. Gulliver and Baron Munchausen would blush with envy and chagrin could they be present. Hampton M.D.'s will recognize the chief Ananias.

The roentgen-ray outfit has been set up by Captain Merritt, M. R. C., and Lieut. Victor Noel, S. C., and some excellent pictures have already been taken. The laboratory is doing great work and materially aiding the whole staff by prompt and rapid reports. Men exposed to meningitis are now being examined for carriers. The new quarters for the hospital staff are ready for occupancy and the officers are moving in. Major Hope reports that on a recent visit to the Chesapeake region he found the oysters in prime condition and of excellent flavor, and that he ate a barrel on the half shell to be sure that they were.

The base hospital staff has been delighted and very much improved in every way by the presence of Mrs. Ferdinand Schmitter, the wife of the commanding officer, and her sister, Miss Bradstetter, who have added the charm of social life to the camp.

The first of the regular weekly clinical meetings was held at the base hospital, Thursday evening, November 8, and was attended by all the medical officers of the base hospital and the division. Major Ferdinand Schmitter, M. C., presided. The meeting was under the direction of the chief of the medical service, Major Lawrence Litchfield, M. R. C.



Officers of base hospital, Camp Lee, Va. From left to right: lower half row, Major Ferdinand Schmitter, M. C., U. S. Army; Major E. W. Day, M. R. C.; Major Joseph W. Hope, M. R. C.; lower full row, Major William E. Peple, M. R. C.; Major Samuel B. Moore, M. R. C.; Major Lawrence Litchfield, M. R. C.; Major J. B. Clark, M. R. C.; Capt. Beverly R. Kennon, M. R. C.; Capt. L. E. Hetrick, M. R. C.; second row, Capt. Lauren Thomas, M. R. C.; Capt. Henry B. Gillen, M. R. C.; Capt. Edward M. Parker, M. R. C.; Capt. Henry R. Weston, M. R. C.; Capt. Hugh Beebe, M. R. C.; Lieut. P. C. Riley, M. R. C.; Lieut. J. J. Beaton, M. R. C.; third row, Lieut. Nathaniel Barnard, D. R. C.; Lieut. Clay M. Easter, M. R. C.; Capt. Edwin A. Merritt; Lieut. I. H. Goldman, M. R. C.; Lieut. F. B. Humphreys, M. R. C.; Lieut. Samuel E. Lambert, M. R. C.; Lieut. Clarence S. Yoakum, S. C.; top row, Capt. W. S. Hunter, M. R. C.; Lieut. Edward S. Jones, S. C.; Lieut. Thomas S. Lee, M. R. C.; Lieut. T. F. Smith, D. C.; Lieut. F. J. Smith, M. R. C.; Lieut. H. A. Rothrock, M. R. C.; Lieut. C. H. Perry, S. C.; Lieut. W. S. Hunter; Lieut. R. L. Davis, M. R. C.; Lieut. George R. Moffitt, M. R. C.

Contract Surgeon Thomas S. Lee presented a case of dexiocardia, the only case detected in the examination of 40,000 recruits. Major Schmitter stated that in the examination of 40,000 recruits at Fort Slocum, one case of dexiocardia was diagnosed.

Lieutenant Phails then showed a case of lichen planus, and one of pityriasis rosea. The discussion of the latter case elicited the fact that a positive Wassermann test had been obtained in a number of cases of pityriasis rosea. Two interesting abnormal gaits were demonstrated by Major Litchfield; one was possibly sacro-iliac disease; the other patient had an unusual rolling gait, walking on the outer side of the feet, no change in sensation or reflexes, and no abnormality in the joints. This case was believed to be one of hysteria.

Lieut. P. C. Riley, M. R. C., of the medical staff, told of the number of cases of communicable disease treated in the base hospital since it was opened: thirteen cases of lobar pneumonia, with no deaths; four of typhoid fever (infection prior to arrival), with one death; seven of meningitis, with one death; one of scarlet fever; two of chickenpox; twenty-two of mumps, and twenty-six of measles.

The subject of the evening was cerebrospinal meningitis, the clinical features of which were discussed by Major Litchfield. Lieut. E. J. Asnis, M. R. C., then discussed the subject of meningitis carriers and method of detection. Lieut. F. B. Humphreys demonstrated the brain of the patient with meningitis that had died, and made some interesting remarks on the different immunologic reactions of the different types of meningococci.

Eighty-First Division, Camp Jackson, Columbia, S. C.

We have moved to the base hospital. A more beautiful and healthier site could hardly be found. To stand on the misty hilltop to welcome the glorious sun and fill the lungs with pure air makes a man thankful that he is an American, beginning his real duty to the world.

ORTHOPEDIC WORK

Among the specialists who are visiting Camp Jackson is Capt. J. T. Rugh, M. R. C., Philadelphia. Prophylaxis along orthopedic lines is being organized in Camp Jackson; lectures pertinent to the care of the feet, joints and spine are given to the medical and line officers of every brigade and of independent organizations. The instructions deal purely with the soldier; every effort is directed toward rendering him more efficient by personal attention to the fit of the shoes, proper manner of walking, and strengthening of his foot and leg muscles by graduated exercise, and greater emphasis is placed on the importance of this care during the first six or eight weeks of his training. The care of the shoes, stockings and feet is also taught to the officers and by them to their men, and everything that will contribute to greater efficiency is being utilized in all channels.

Captain Rugh is supervising orthopedic surgeon in charge of five camps in North Carolina, South Carolina and Georgia, and his work and efforts are meeting with the heartiest cooperation among the officers in all organizations. A daily orthopedic dispensary under the care of Lieutenant Garrenton has been established. Foot inspection of all in the camp will be made, and potential disabilities will be recognized early and prevented by proper means.

TUBERCULOSIS AND CARDIAC SERVICE

The Medical Department of the government is doing a great service for the people of America. A board for the special examination of all members of the command for pulmonary and cardiac defects began work in camp this week. It consists of Major Boyce, M. R. C., Pittsburgh, president; Lieuts. Leopold Shumaker, Edgar W. Cowan, Owen S. Deathridge, Ephraim Goldman, Urban H. Reidt and Edward N. Packard, and Surgs. Howard Van Rensselaer, John R. Williams and Hugh F. Keating. Recently Major Boyce addressed the meeting of the base hospital lyceum on the pathology and diagnosis of tuberculosis, laying especial stress on the value of close coordination between clinician and roentgenologist. Major Herrick, chief of the medical service, will have the cooperation of this board in this service.

PERSONAL

The new commander, Major Thomas J. Leary, who recently returned from Panama, where he was chief surgeon in command of the Colon Hospital, has taken firm hold on the base hospital, and things are moving with a swing. Visiting him are his wife and child from Philadelphia. Mrs. Leary, being the wife of a Regular Army man, has been his companion in Panama and the Philippines.

The wife and the daughter of Captain Baeslack, chief of the pathologic laboratory, are visiting in Columbia. Captain Baeslack has done original work on cancer, sarcoma, syphilis and other diseases.

Dr. F. Victor Laurent, formerly baritone of the Paris Opera, Covent Garden and Metropolitan companies, joined the Medical Reserve Corps last April as first lieutenant, and after a course of training at the medical officers' training camp at Fort Oglethorpe was sent to this camp to make examinations in his speciality, otolaryngology. Lieutenant Laurent is now stationed at the base hospital, and in addition to his medical and military duties is teaching his fellow officers French conversation, and finds time to sing occasionally in some of the churches in Columbia. Several weeks ago he sang "It is Enough," from "Elijah," at Trinity, and repeated this the following Sunday at the First Baptist Church by request of Lieutenant-Governor Bethea, who is a warm admirer of the Mendelssohn oratorio. The doctor had arranged for some joint recitals with Yvonne de Treville, the distinguished coloratura soprano, for this season; but after accepting his commission, these engagements were canceled. It is possible, however, that they will give a joint recital at the camp during the winter.

Lieutenant Laurent lived for five years in Paris, and is anxious to get to the front where many of his old comrades now are.

Major J. Stone, chief of the surgical service, received his commission in October.

Captain Pendleton of Portsmouth, Va., has just received his commission as captain.

Mrs. Burton Chance, wife of Captain Chance, and son recently visited Columbia and Camp Jackson.

Lieut. Harry Judge of Albany, N. Y., has been assigned to the ophthalmologic department.

Major Greenwood has visited Camp Jackson and other cantonments in the interest of eye departments.

Eighty-Fourth Division, Camp Zachary Taylor, Louisville, Ky.

FOOD WASTE

Numerous letters have been received by the daily press in Louisville, attributed to German propagandists, in which it is charged that food by the wholesale is being wasted at Camp Zachary Taylor. Some of the letters have been turned over to the intelligence section of the general staff of the Eighty-Fourth Division for investigation. It is a fact that the garbage contractor who expected to get 60,000 pounds of garbage daily from the entire camp is receiving only 8,000 pounds, which of itself shows that waste is at a minimum. The problem of saving food, until recently, has fallen on Major Luther Poust, chief sanitary inspector, who has under his direction six lieutenants of the Medical Reserve Corps who make the rounds of the camp every morning and see that all sanitary rules are obeyed, and that nothing is found in the garbage cans other than what should be there. In addition, a commissioned officer must be in attendance when mess is served, to prevent waste.

Here are a few of the instructions that every mess sergeant and cook must follow in his kitchen: The portion of bread bitten by a soldier must be cut off, placed in the oven and sterilized, and saved for bread pudding and meat dressings; oatmeal and corn grits must be saved for puddings and dressings; bones, after the meat is removed, are saved and boiled for soup; all left over meats and fats are boiled and rendered, and used for frying and flavoring.

A soldier is expected to eat as long as he is hungry, just so that he does not waste.

A commissioned officer is on duty at the garbage incinerator, and closely observes every can that comes there. The inspection of garbage does not at first thought seem to be a very important duty for a medical officer to perform; yet this is one of the most important functions of the Sanitary Corps. Lieut. Lee Ernstberger of Louisville is one of this corps detailed for the inspection of garbage, and reports that there is no waste at the camp.

Orders were issued, November 6, designating Col. J. H. Allen as food conservation officer of the cantonment. Under the orders, all regimental, battalion and independent unit commanders must submit every ten days, commencing November 10, a report to the food conservation officer showing the amount of fresh and canned beef, fresh pork, bacon, bread, sugar and lard used by their respective commands, and this report must embody also the respective strength of the commands. Mess officers will be required to keep a daily report showing the number of meals prepared for officers and those actually served, together with the amount used of the foregoing foodstuffs. The order enjoins every enlisted man to do all in his individual power to prevent waste of food. One of the regulations of the sanitary corps is that garbage cans be kept within the screened kitchens, in this way flies being reduced to a minimum. Garbage cans are chemically treated and steamed, eliminating entirely the sour smell ordinarily present in these cans.

MEASLES

The entire Three Hundred and Thirty-Sixth Infantry, composed almost entirely of Kentucky soldiers, has been quarantined on account of an epidemic of measles. Eighty-one cases have been reported from this regiment. They came in so fast as to swamp the base hospital, and a company barracks in the regimental confines was requisitioned for a temporary hospital. The quarantine order applies to officers and men alike, not a man being allowed to leave the regimental area. The epidemic began three weeks ago and was traced to a drafted man in whose home there was a case of measles when he left for the camp. Practically every company has had men affected. The disease generally has been in a mild form. One death has resulted from a complicating bronchopneumonia. Practically none of the men from Louisville have had it. The quarantine order prevented a number of Louisville men obtaining leave in order to vote.

On the first evening of the session of the Kentucky State Medical Association, the members heard a stirring patriotic address by Governor A. O. Stanley, given especially before the medical members of the draft examining boards of the state. At the conclusion of his address, three members of the reviewing board at Camp Zachary Taylor were called on to explain in brief in regard to the chief causes for final recommendation for rejection by the reviewing board. Major Walter Hamburger, president of the board, called attention to the fact that approximately but 5 per cent. of all troops received were rejected, a smaller percentage in comparison with nearly all of the other camps. The division surgeon had stated that probably many men were accepted, with perhaps no visible or demonstrable lesion, who were in such a general physical condition, perhaps of malnutrition, that they would finally not make good soldiers.

Major Hamburger mentioned, as among the most frequent causes for rejection, hernias, flatfoot, trachoma, congenital amblyopia, tuberculosis, asthma, chronic valvular disease of the heart, and active syphilis.

Lieut. Willard J. Stone, in charge of the cardiovascular examinations, reported that of 201 heart patients, 43 per cent. had been rejected. Of this number, mitral regurgitation caused 54 per cent.; mitral stenosis with regurgitation, 16 per cent.; simple tachycardia, 10 per cent.; hypertension, 7 per cent., and hyperthyroidism, 5.7 per cent. A large number of men with accidental or functional murmurs were referred to the board by the regimental surgeons, and 35 per cent. of these were accepted. He mentioned the effort test that was used in these heart examinations, the pulse rate and blood pressure being taken with the patient recumbent; then with the pressure cuff in position, the soldier is caused to take 100 short hops on alternate feet, the blood pressure being then taken within fifteen seconds after the effort. The ratio of rate and blood pressure before and after effort is carefully recorded and compared. If the rate increases inordinately while the blood pressure does not, the candidate is not fit to serve.

DIVISION SURGEON'S REPORT

The report of the division surgeon, November 11, shows a total of 550 patients in the base hospital, and 420 under treatment in the regimental infirmaries. The venereal cases show 455 cases of gonorrhea. Venereal prophylaxis was given 126 times. Twenty per cent. of all sickness in the command is venereal. In the base hospital are nineteen cases of pneumonia, with no new cases; three cases of parotitis; four of meningitis; four meningitis carriers, and 186 cases of measles. November 10, 3.27 per cent. of the command were ill. The lowest rate was 1.67 per cent.

The first meningitis carrier slept next to the first man who developed meningitis, and has remained well, as have the other three carriers. These men have been treated by the dichloramin-T solution and are now free of organisms.

The reviewing board up to November 11 had rejected 1,689 men.

Diphtheria developed in the Three Hundred and Thirty-Third Infantry, and cultures were taken from the throats of all the rest of the men and were found negative. In the future the Schick test will be used, as the diphtheria toxin is now on hand for that purpose.

The entire Three Hundred and Thirty-Sixth Regiment of Infantry is quarantined for measles, and one battalion of four companies in the One Hundred and Fifty-Ninth Depot Brigade.

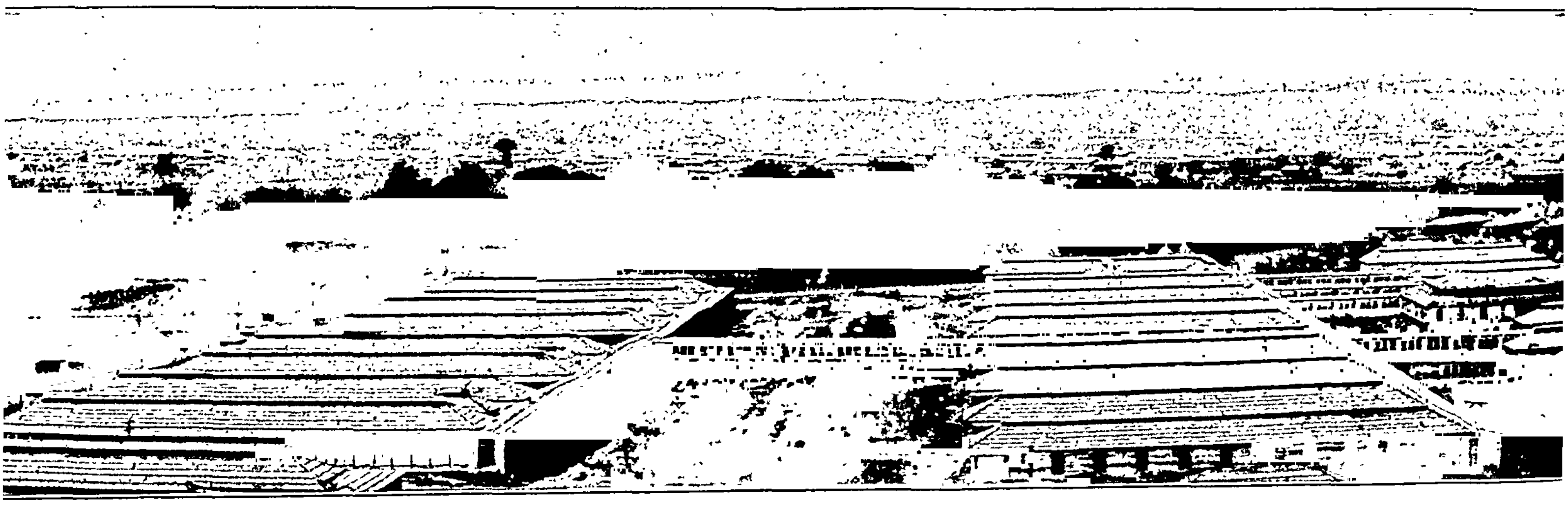
Capt. Herbert Fox and Mrs. Fox have been called to Philadelphia by telegram announcing a serious injury to their son caused by an automobile.

Eighty-Sixth Division, Camp Grant, Rockford, Ill.

Specialists have been assigned to the camp for consultation on doubtful cases so that in every questionable case the patient may have the benefit of an expert's opinion. Tuberculosis is especially looked for and the following method has been effective in finding mild and incipient cases:

An enlisted man makes out the roster of the company, using a separate slip for each man. This slip has the man's name, rank and organization, pulse and temperature, and the heart and lung findings. Half an hour before the appointed time, four enlisted men go to the barracks and take the pulse and temperatures, which they record on the slip. The examining board goes to the barracks and examines the men. Each man strips to his waist and stands by his cot with his slip. This method creates very little confusion and inconvenience. Positive or doubtful cases are referred to the tuberculosis expert who is attached to the base hospital. It takes about five minutes to examine a man's chest, and each examiner can examine about seventy-five a day. When heart cases are found, the patients are referred to the cardiovascular expert, who is also attached to the base hospital.

The Base Hospital Medical Society is organized, and holds weekly meetings at which papers on various subjects are read.



Base hospital, Can

No communicable diseases have been encountered among the 4,500 horses and mules received at the remount station, and from there distributed to the various regiments.

PERSONAL

The president-elect of the Kentucky State Medical Association, Dr. Phil Stewart of Paducah, the retiring president, Dr. Milton Board of Louisville, and the secretary, Dr. Arthur T. McCormack, are members of the Medical Reserve Corps, in active service. The orator in surgery, Dr. Fred L. Koontz of Louisville, was unable to be present on account of a special detail to a point of instruction.

First Lieuts. Lauren N. Lindenberger and Walter S. Wyatt, medical officers, have reported at headquarters in compliance with orders from the War Department, and have been temporarily assigned to the base hospital. They came from Camp Shelby at Hattiesburg, Miss.

The second evening session of the Kentucky State Medical Association was devoted to a military symposium. The special speaker was Dr. George Loewy, representing the French Army, who showed a number of slides of wounds, before, during and after treatment by the Carrel-Dakin method. Lieutenant Holstein read a paper on cerebrospinal meningitis; Major Jump of Philadelphia, from the Surgeon-General's Office, made an impassioned plea for more recruits for the Medical Reserve Corps; Major Poust told of the work of the Sanitary Corps at Camp Zachary Taylor, and Lieut.-Col. John Allen gave a summary of the work of the reviewing board.

Lieut. Willard J. Stone, contract surgeon, left for his home in Toledo, Ohio, on special leave, to return on call from the camp division surgeon.

Eighty-Seventh Division, Camp Pike, Little Rock, Ark.

With the exception of the base hospital, practically all the buildings at Camp Pike have their heating plants in good working order. The men both in barracks and in the officers' quarters were very comfortable during the recent cold spell.

Men leaving here for National Guard camps in the South, as they have been doing in large numbers for the past few weeks, did not depart with any special enthusiasm, knowing that they were leaving the land of heated wooden barracks and hot shower baths for a country of tents and "cold gray dawns" with no heat.

There is a feeling of great relief that the War Department's ban on reserve corps commissions has apparently been lifted, as commissions are beginning to arrive, notice of the recommendations for which were issued just prior to the institution of the embargo.

There are at Camp Pike nearly 200 medical officers, including those at the base hospital. A large percentage of these are from the training camps at Forts Riley and Oglethorpe.

PROMOTIONS

Many of these officers have been in the service nearly six months. The five promotions recently reported in these columns are from the last class, and are the only promotions received in this class at this camp. Promotions for medical men in this cantonment have not averaged 5 per cent. to date since the cantonment was opened. It is generally conceded that the matter of promotion of medical officers has not been overdone.

Many entered the service with a sort of unofficial understanding that they would be promoted at the end of ninety days' active service. The members of the old Medical Reserve Corps who were the first to enter the service, without the stimulation of whose example it would have been more difficult to get things started, are apt to feel that their claims for recognition should be considered before those who came in later. It is generally recognized, however, that under the tremendous pressure of the great work essential to the building up, officering and equipping of the Medical Department of so great an army, it is difficult to be absolutely fair to all concerned.

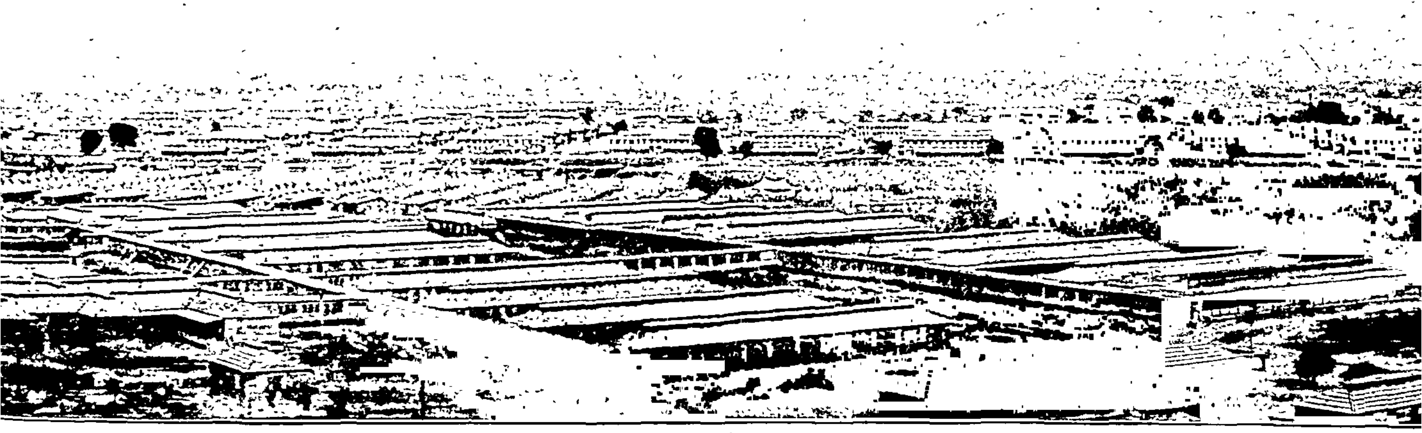
LECTURES

Lieut.-Col. Robert M. Thomburgh, division surgeon, gave an interesting and illuminating lecture on customs of the service at a lyceum held at the base hospital on the evening of November 5. Colonel Thomburgh brought out clearly that there are a good many things not covered by army regulations which are still important to know if the new medical man wishes to conduct himself as an "officer and a gentleman" while on duty.

Lieut. E. T. Wentworth of the orthopedic staff at the base hospital gave a series of three lectures on the foot recently at the officers' lyceum. Lieutenant Wentworth divided the subject by lectures into anatomy, diagnosis and treatment.

MEASLES

The measles epidemic at Camp Pike continues unabated. There was an apparent lull in the contagion for a short period, but at present there is a large number of these cases. The base hospital has found it too great a burden to look after them, so an order has been issued requiring each area to take care of its own cases as long as they are of the mild type without serious complications.



rman, Chillicothe, Ohio.

HEMORRHAGIC SEPTICEMIA OF MULES

An epidemic of hemorrhagic septicemia has kept the veterinary section of the Medical Reserve Corps, stationed at Camp Pike, busy for some time past. A quarantine covering several weeks has just been partially lifted at the auxiliary remount depot, the sanitary train receiving this week part of its quota of mules. There are over 10,000 animals at the remount depot. The deaths from hemorrhagic septicemia have totaled about 200. The serum treatment was used as a prophylactic in combating the disease.

ORDERS TO OFFICERS OF THE MEDICAL CORPS

Col. PERCY M. ASHBURN, Major SAMUEL S. CREIGHTON, Major CONDON C. McCORMACK, relieved at Fort Benjamin Harrison, Ind., and to proceed *to Washington, D. C.*, for duty in the office of the Surgeon-General of the Army.

To Camp Greenleaf, Fort Oglethorpe, Ga., for duty as instructors, from Fort Benjamin Harrison, Ind., Lieut.-Cols. A. W. SHOCKLEY, GEORGE H. SCOTT; Majors JOSEPH E. BASTION, TAYLOR E. DARBY.

To Fort Riley, Kan., as instructors, from Fort Benjamin Harrison, Ind., Lieut.-Col. HENRY F. PIPES, Major HOWARD McC. SNYDER.

Col. WILLIAM STEPHENSON, Headquarters, Central Dept., Chicago, Ill., *to Governors Island, N. Y.*, for duty as department surgeon.

Col. HENRY I. RAYMOND, Medical Supply Depot, Fort Mason, Calif., *to Chicago*, for duty.

Lieut.-Col. WILLIAM A. POWELL, relieved at Camp Custer, Battle Creek, Mich., and *to Camp Devens*, for duty as division surgeon.

To be relieved from Philippine Dept. and *to San Francisco*, and *to Western Dept.* for assignment to duty, Majors LANPHEAR W. WEBB, ALEXANDER W. WILLIAMS.

Major LEOPOLD MITCHELL, relieved from Hawaiian Dept. and *to San Francisco*, Western Dept., for assignment to duty.

Major JOHN P. FLETCHER, now on duty at Motor Ambulance Supply Depot, Louisville, Ky., be directed to proceed on completion of his present work at that place, of inspecting motor ambulance spare parts equipment, to Pontiac, Mich., for the purpose of inspecting motor ambulance equipment, and on completion of this duty to return to his proper station.

Col. GEORGE E. BUSHNELL to the following named camps for the purpose of inspecting the work of tuberculosis examiners, Camp Beauregard, Camp Pike, Camp Funston, Camp Dodge, Camp Grant.

Col. LOUIS A. LAGARDE, *to New York City* to present eight lectures on military medicine and camp sanitation, and additional lectures on military surgery at the University and Bellevue Hospital Medical College, New York University.

Lieut.-Col. GEORGE F. JUENEMANN, relieved at the Reorganization Camp, Gettysburg, Pa., and *to Fort Logan H. Roots, Ark.*, for duty as commanding officer of that post.

Col. ALLEN M. SMITH, at Fort Logan, Colo., *to inspect property known as the Westminster College, Westminster, Colo.*, with a view to reporting upon its desirability for use as a hospital.

Lieut.-Col. FRANK C. BAKER, relieved at Fort Oglethorpe, and to report to the commanding officer, *Camp Greenleaf*, for duty as commanding officer, Evacuation Hospital No. 4.

Lieut.-Col. PAUL C. HUTTON, relieved at Philippine Dept. and *to Camp MacArthur, Waco, Texas*, for duty as division surgeon.

Major LOUIS H. HANSON, relieved at Syracuse, New York, and *to Camp Bowie, Fort Worth, Tex.*, for duty as commanding officer of the base hospital.

Major GARFIELD L. McKINNEY, relieved at Corozal, Canal Zone, and *to commanding general, Eastern Dept.*, for duty.

Major LEARTUS J. OWEN, now on duty in the office of the Surgeon-General of the Army, *to Army Medical School, Washington, D. C.*, for examination for promotion.

Lieut.-Col. JOHN W. HANNER, relieved from 76th Division, Camp Devens, Ayer, Mass., and *to Washington, D. C.*, and report in person to the Surgeon-General of the Army for duty in his office.

Col. HENRY D. SNYDER, *to New York City* for temporary duty pertaining to the assembling of the branch of the Division of Finance and Supplies for duty overseas.

To San Francisco, Calif., and to report by wire to the Adjutant-General of the Army and to the Surgeon-General of the Army for further orders, from Hawaiian Dept. Majors CLARENCE R. BELL, GEORGE R. CALLENDER, HARRY N. KERNS.

Major WILLIAM H. TEFFT, relieved at Fort Douglas, Utah, and *to Fort Riley, Kan.*, for duty as commanding officer of Evacuation Hospital No. 7.

Lieut.-Col. ROBERT E. NOBLE, *to Camp Greenleaf* for duty in connection with the Medical Dept. and upon completion of this duty will return to his proper station.

Col. WALTER D. McCAW, relieved at Headquarters, Southern Dept. Fort Sam Houston, Texas, and *to Presidio, San Francisco, Calif.*, to assume command of the expedition of medical officers for duty overseas.

Col. CHARLES LYNCH, relieved with Base Hospital No. 2, Fort Bliss, Texas, *to Fort Sam Houston, Texas*, and report to the commanding general, Southern Dept., for duty as department surgeon.

Col. HENRY A. WEBBER, relieved at Laredo, Texas, and *to Fort Bliss, Texas*, for duty as commanding officer of Base Hospital No. 2.

Lieut. EDGAR N. HUME, relieved at the United States Disciplinary Barracks, Fort Leavenworth, Kan., and *to Washington, D. C.*, and report in person to the Surgeon-General of the Army for duty in his office.

ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

Alabama

To Army Medical School, from Fort Benjamin Harrison, Lieut. JULIAN E. MEYER, Birmingham.

To Camp Dix, Wrightstown, N. J., from Fort Ethan Allen, Lieut. GEORGE C. KILPATRICK, Mobile.

To Fort Riley, base hospital, Lieut. RUSSELL CALLEN, Birmingham.

To Hoboken, N. J., as officer in charge of Mobile Laboratory, 41st Division, Lieut. JAMES R. BEAN, Birmingham.

To Rockefeller Institute, New York City, for instruction, from Fort Oglethorpe, Lieut. JOHN D. DICKSON, Birmingham.

Arkansas

To Camp McClellan, Anniston, Ala., base hospital, from Fort Oglethorpe, Lieut. JAMES F. POE, Shirley.

To Fort Sam Houston, Tex., from Fort Benjamin Harrison, Lieut. GEORGE B. FLETCHER, Little Rock.

To home and inactive list, from Fort Des Moines, Lieut. DANIEL W. JONES, Little Rock.

California

To Berkeley, Calif., University of California, as recruiting officer, Lieut. BRUNO F. SANDOW, Oakland.

To Camp Kearney, Linda Vista, Calif., base hospital, Capt. HERBERT S. THOMSON, Berkeley.

To Chicago, Ill., Northwestern University Dental School, for instruction, and on completion *to Camp MacArthur,* base hospital, from Fort Oglethorpe, Capt. ERNEST DOZIER, Redding; for instruction and on completion *to proper station,* from Camp Lewis, Lieut. JOSEPH R. BROWN, San Francisco.

To Fort Leavenworth, Kan., for duty in the department laboratory. Capt. JAMES M. FISHER, Gilroy.

To Fort Sam Houston, Tex., from Fort Benjamin Harrison, Lieuts. LOUIS FELGER, PERCY K. TELFORD, Los Angeles; WILLIAM A. BOYLE, FRANK W. PINGER, San Francisco.

To Los Angeles, Calif., for instruction in military roentgenology, from Presidio of San Francisco, Lieut. WALLACE A. REED, Covina.

To San Francisco, Calif., for duty, Lieuts. WALTER E. COPPEDGE, Alturas; ALBERT F. ADAMS, Sacramento; *to Letterman Hospital,* for duty, from the Presidio of San Francisco, Lieut. HARRY E. FOSTER, Berkeley.

Colorado

To Camp Grant, Rockford, Ill., base hospital, from Fort Oglethorpe, Lieut. WILLIAM A. SEDWICK, Denver.

To Mount Clemens, Mich., for duty, from Fort Riley, Lieuts. JOHN W. THOMPSON, Pueblo; JUSTIN J. YOUNG, Kremmling.

To Rantoul, Ill., for duty, from Fort Riley, Lieut. CARL C. FUSTON, Milliken.

To Rockefeller Institute, for instruction, and on completion, *to Walter Reed General Hospital,* Takoma Park, D. C., for duty, Lieut. JOHN R. HALL, Fort Logan.

Connecticut

To Boston, Mass., General Hospital, for instruction, and on completion, *to Camp Lee,* base hospital, from Fort Benjamin Harrison, Lieut. JEREMIAH B. SULLIVAN, New Haven.

To Camp Devens, 76th Division, for duty, Capt. FRANK P. TODD, Danielson.

To Camp Greenleaf, Fort Oglethorpe, for duty with Hospital Train No. 26, Lieut. LAWRENCE H. FROST, Plainville.

To Camp Sherman, Chillicothe, Ohio, base hospital, from Fort Benjamin Harrison, Capt. LOUIS I. MASON, Willimantic.

To New Orleans, La., Charity Hospital, for instruction, and on completion, *to Camp Beauregard,* base hospital, Lieut. FREDERICK E. STOCKTON, Springdale.

To Portland, Ore., for further instructions and assignment to duty with squadrons now being organized, Major RICHARD BLACKMORE, Framington.

To Rockefeller Institute, for instruction, Lieut. WILLIAM M. STAHL, Danbury.

To Walter Reed General Hospital, Takoma Park, D. C., for instruction in tuberculosis examination, Lieut. RAYMOND V. QUINLAN, Meriden.

District of Columbia

To Camp Sevier, Greenville, S. C., base hospital, from Fort Benjamin Harrison, Lieut. ROY T. MORRIS, Washington.

To Chicago, Ill., Northwestern University Dental School, for instruction, and on completion, *to Camp Hancock,* base hospital, from Camp Hancock, Lieut. OLIVER C. COX, Washington.

To Fort Sam Houston, Tex., for duty, from Fort Benjamin Harrison, Lieuts. JOSEPH P. MADIGAN, PATRICK S. MADIGAN, ERNEST K. STRATTON, Washington.

To Pittsburgh, Pa., for instruction from Dr. William O. Sherman, and on completion, *to Fort McHenry, Md.,* Army General Hospital, No. 2, Lieut. IVA A. PELZMAN, Washington.

To Walter Reed General Hospital, Takoma Park, orthopedic service, from Camp Meade, Major THOMAS M. FOLEY, Washington.

Honorably discharged on account of being physically disqualified for active service, from Camp Jackson, Lieut. WILLIAM E. WHITSON, Washington.

Florida

To Camp Wheeler, Macon, Ga., base hospital, from Fort Oglethorpe, Lieuts. ELIJAH T. SELLERS, Jacksonville; WILLIAM R. GROOVER, Lakeland.

To Fort Barrancas, Fla., for duty, from Camp Wheeler, Lieut. ALLEN M. AMES, Pensacola.

To Fort Sam Houston, Tex., for duty, from Fort Benjamin Harrison, Lieut. BASCOM H. PALMER, Lake City.

Georgia

To Atlanta, Ga., Georgia School of Technology, as recruiting officer, Capt. WILLIAM A. JACKSON, Atlanta.

To Camp Wadsworth, Spartanburgh, S. C., base hospital, from Fort Oglethorpe, Lieut. ROBERT C. WALKER, Waycross.

To Camp Wheeler, Macon, Ga., base hospital, from St. Elizabeth's Hospital, Washington, D. C., Lieut. QUINTARD TAYLOR, Maysville.

To his home and the inactive list, from Cornell Medical College, Lieut. JOHN S. DERR, Atlanta.

To be honorably discharged on account of being physically disqualified for active service, Lieut. GRADY L. CARTER, Talbotton.

Hawaii

To Camp Kearney, Linda Vista, Calif., base hospital, from Hawaiian Dept., Capt. JOHN B. LUDY, Honolulu.

Idaho

To Camp Stuart, Newport News, Va., for duty, from Fort Benjamin Harrison, Lieut. ERNEST N. LAUBAUGH, Boise.

Illinois

To Boston, Mass., for instruction and on completion *to Camp Jackson, Columbia, S. C.,* base hospital, from Fort Benjamin Harrison, Lieuts. HILIEL T. ISACOWITZ, Chicago; ANSON L. NICKERSON, Momence; FRANK E. SHIPMAN, Paris; MARSHALL WALLIS, Normal; ORA M. WILLIAMSON, Sullivan.

To Camp Custer, Battle Creek, Mich., base hospital, from Fort Benjamin Harrison, Major PHILIP S. DOANE, Chicago, Lieuts. PAUL E. BAIN, Pleasant Plains; CLIFFORD J. SPRUCE, Sibley.

To Camp Funston, Fort Riley, to inspect, and on completion *to Fort Des Moines,* and to the regular itinerary furnished, Major JOHN RIDLON, Chicago.

To Camp Gordon, Atlanta, Ga., base hospital, from Fort Benjamin Harrison, Lieut. GUY A. LONGBRAKE, Galesburg.

To Camp Grant, Rockford, Ill., base hospital, from Fort Benjamin Harrison, Capt. FRANCIS W. BARTON, Danville; Lieut. JOHN R. PORTER, Rockford.

To Camp Greene, N. C., base hospital, from Fort Benjamin Harrison, Lieut. ROSCOE A. MITCHELL, Marshall.

To Camp Greenleaf, Fort Oglethorpe, for a course of instruction, Capt. ROY R. FERGUSON, Chicago.

To Camp Lee, for duty, from Camp Sherman, Chillicothe, Ohio, Capt. STEPHEN V. BALDERSTON, Evanston.

To Camp Pike, base hospital, from Fort Benjamin Harrison, Capt. CHARLES J. POOLE, Mount Vernon; Lieut. RAYMOND C. GILLOGLY, Newman.

To Camp Sevier, Greenville, S. C., base hospital from Fort Benjamin Harrison, Lieut. GEORGE BLACKBURNE, Minier.

To Camp Sherman, Chillicothe, Ohio, base hospital, from Fort Benjamin Harrison, Capt. JOSEPH R. HOLLOWBUSH, Rock Island; Lieuts. ROBERT A. NOBLE, Bloomington; *CHARLES A. BURKHOLDER,* Chicago; JOSEPH A. CAMPBELL, Anna; ORVEL A. SUTTLE, Mt. Vernon.

To Camp Travis, Fort Sam Houston, Texas, board for examination for tuberculosis, from Camp McClellan, Lieut. SAMUEL M. MARCUS, Chicago.

To Champaign, Ill., University of Illinois, as recruiting officer, Lieut. JAMES H. FINCH, Champaign.

To Chicago, Ill., for instruction, from Camp Dodge, Capt. EDWARD C. G. FRANING, Galesburg; Capt. ALPHA E. ROCKEY, Chicago; Lieut. LEROY B. ELLISTON, Depue; Lieut. LYMAN A. BURNSIDE, West Union.

To Cleveland, Ohio, for instruction, and on completion *to Camp Hancock,* base hospital, Lieut. JOHN H. EVANS, Chicago.

To Fort Riley, Kan., base hospital, from Fort Benjamin Harrison, Capt. PERCY J. CARROL, East St. Louis; Lieuts. ARTHUR D. JACKSON, FRANK W. MERRITT, Chicago.

To Fort Sam Houston, Texas, for duty, from Fort Benjamin Harrison, Lieuts. JOHN E. ROBINSON, MONTREVILLE A. ST. PETER, Chicago; EDWARD S. MURPHY, Dixon.

To Hawaii, and on arrival in Honolulu to report in person to the commanding general, Hawaiian Dept., for duty, from Fort Benjamin Harrison, Lieut. ALBERT L. STEBBINGS, Marseilles.

To New Orleans, La., Charity Hospital for instruction, and on completion *to Camp Beauregard,* base hospital, Lieut. TODD P. WARD, Mt. Vernon.

To New York City, Bellevue Hospital, for instruction, and on completion to Camp Meade, base hospital, from Fort Benjamin Harrison, Lieuts. ANTHONY J. LINOWIECKI, Chicago; LOUIS SAVITSKY, Cicero; EMANUEL M. RUNDQUIST, Rockford; *to Camp Pike,* Lieut. FRANK F. MILTON A. WEISE, Chicago; *to Camp Taylor,* Lieut. FRAIDER, Chicago; *to Camp Upton,* Lieuts. JACOB A. GOODMAN, IRA McKINNEY, Chicago; *to Cornell Medical College,* from Fort Oglethorpe, Lieut. SAMUEL J. TAUB, Chicago.

To Philadelphia, Pa., University Hospital, for instruction, and on completion *to Camp Custer,* base hospital, from Fort Benjamin Harrison, Capt. EUGENE F. WAHL, Edwardsville; *to Camp Dix,* base hospital, Lieut. EVERETT P. COLEMAN, Canton.

To Pittsburgh, Pa., for instruction, and on completion *to Camp Dodge,* base hospital, from Fort Benjamin Harrison, Lieut. ARTHUR K. SPIERING, Oak Park.

To Rockefeller Institute, New York City, for instruction, Lieuts. THOMAS R. MAXWELL, New Berlin; JOHN HRABIK, Murphysboro; on completion *to Fort McPherson, Ga.,* base hospital,. Lieut.

ARTHUR D. WEST, Moline; *to Fort Oglethorpe,* base hospital, from Fort Benjamin Harrison, Lieut. CHARLES R. SANDERSON, Waynesville.

To Scott Field, Bellevue, Ill., for duty, from Fort Benjamin Harrison, Lieut. HENRY L. DAVIS, Mt. Vernon.

To his home and the inactive list on account of being physically disqualified for active service, from Fort Benjamin Harrison, Lieuts. JAMES A. BOYER, Carmi; ADRIAN J. DeHAAN, East St. Louis.

Indiana

To Camp American University, Washington, D. C., for duty, from Fort Oglethorpe, Lieut. WALTER M. STOUT, Indianapolis.

To Camp Custer, Battle Creek, Mich., base hospital, from Fort Benjamin Harrison, Lieuts. JOHN C. GLACKMAN, Hartford; ELTON L. TITUS, Indianapolis.

To Camp Devens, base hospital, from Fort Benjamin Harrison, Lieut. HARRY S. OSBORNE, Glenwood.

To Camp Gordon, Atlanta, Ga., base hospital, from Fort Benjamin Harrison, Capt. SIMON J. YOUNG, Valparaiso.

To Camp Mills, Garden City, L. I., N. Y., base hospital, Lieut. WALLACE C. DYER, Evansville.

To Camp Pike, base hospital, from Fort Benjamin Harrison, Lieut. JOSEPH A. GRAHAM, Hammond.

To Camp Travis, base hospital, from Fort Benjamin Harrison, Lieut. MANFORD M. CLAPPER, La Fayette.

To Cleveland, Ohio, for instruction and on completion *to Camp Wadsworth,* base hospital, from Fort Riley, Lieut. Lyman T. Rawles, Fort Wayne.

To Fort Riley, Kan., base hospital, from Allentown, Pa., Lieut. WALTER M. STOUT, Indianapolis, Ind.

To Fort Sam Houston, Texas, from Fort Benjamin Harrison, Lieut. BENJAMIN F. PENCE, Columbia City.

To Hawaii, from Fort Benjamin Harrison, Lieut. EPHRAIM B. CHENOWETH, Nineveh.

To Hoboken, N. J., Port of Embarkation, as officer in charge of Mobile Laboratory, Third Division, Lieut. WEIR M. MILEY, Anderson.

To New Orleans, La., Charity Hospital, for instruction and on completion *to Camp Travis,* base hospital, from Fort Benjamin Harrison, Lieut. ETHAN A. ISH, Waterloo.

To New York City, Bellevue Hospital, for instruction, and on completion *to Camp Sherman,* Capt. JAMES J. STANTON, Logansport; *to Camp Gordon,* Lieut. WILCOX G. THORNE, Columbus; *to Camp Sherman,* Lieut. FRANK McBEELER, Clinton, to Fort Oglethorpe, Lieut. STEPHEN B. ELRED, Henryville.

To Philadelphia, Pa., University Hospital, for instruction and on completion to Camp Custer, base hospital, from Fort Benjamin Harrison, Lieut. DAVID D. OAK, La Crosse.

Iowa

To Boston, Mass., City Hospital, for instruction and on completion *to Camp Dix,* base hospital, from Fort Benjamin Harrison, Lieut. JOHN D. HEXON, Decorah.

To Chicago, Ill., for instruction, from Fort Sam Houston, Tex., Capt. BENJAMIN R. JOHNSTON, Cedar Rapids; *to Northwestern University Dental School,* for instruction and on completion *to Camp Bowie,* base hospital, from Camp Bowie, Lieut. PRENTISS B. CLEAVES, Cherokee.

To Fort Riley, Kan., base hospital, Capt. JAMES W. OSBORN, Lieut. WILLIAM S. BINFORD, Dixon.

To New Orleans, La., Charity Hospital, for instruction and on completion *to Camp Travis,* base hospital, from Fort Benjamin Harrison, Capt. GEORGE W. YAVORSKY, Belle Plaine.

To New York City, Bellevue Hospital, for instruction and on completion *to Camp Sherman,* Lieut. RANSOM D. BERNARD, Clarion; *to Camp Upton,* Lieut. WILLIAM HARRIS, Moravia.

To Philippine Islands, from Fort Benjamin Harrison, Capt. CLIFFORD W. LOSH, Des Moines; John H. Baldridge, Batavia.

To Pittsburgh, Pa., for instruction and on completion *to Camp Grant,* Rockford, Ill., base hospital, from Fort Benjamin Harrison, Lieuts. ELLIOT S. STRONG, Iowa City; HARRY B. WILKINSON, Perry.

To his home and the inactive list on account of being physically disqualified for active service, from Camp Bowie, Lieut. HARRY L. BRIDGMAN, Columbia.

Kansas

To his home and the inactive list on account of being physically disqualified for active service, from Fort Riley, Lieut. EDMOND R. KEITH, Lawrence.

Kentucky

To Boston, Mass., City Hospital, for instruction and on completion *to Camp Dix,* base hospital, from Fort Benjamin Harrison, Lieut. LOUIS R. EDLESON, Louisville.

To Camp Dix, Wrightstown, N. J., base hospital, Capt. JOHN L. PHYTHIAN, Newport.

To Camp Jackson, member of board for examination for tuberculosis, from Fort Oglethorpe, Capt. HORACE LUTEN, Fulton.

To Camp Sherman, Chillicothe, Ohio, base hospital, from Fort Benjamin Harrison, Capt. PORTER LAYNE, Ashland.

To Camp Wadsworth, Spartanburg, S. C., base hospital, from Fort Oglethorpe, Lieut. CHARLES W. STROUP, Ludlow.

To Fort Benjamin Harrison, for instruction in tuberculosis examination, Lieut. WILLIAM S. NEEDHAM, Louisville.

To New York City, Bellevue Hospital, for instruction and on completion *to Camp Mead,* base hospital, from Fort Benjamin Harrison, Lieut. ALBERT L. SOLOMON, Hodgenville.

To his home and the inactive list from Fort Des Moines, Lieuts. MORRIS A. BLACKBURN, ROBERT L. OLIVER, Louisville.

Honorably discharged, Lieut. FINIS LONDON, Woodburn.

Louisiana

To Camp American University, Washington, D. C., for duty, from Fort Oglethorpe, Lieut. JOHN G. LILLY, St. Joseph.

To Camp Meade, Annapolis Junction, hospital, from Fort Oglethorpe, Capt. FRANK M. LETT, Lecompte.

To Camp Sheridan, Montgomery, Ala., for duty, from Fort Oglethorpe, Major ROY M. VAN WART, New Orleans.

Maine

To Army Medical School, Washington, D. C., for instruction in orthopedic surgery, Capt. TALCOTT O. VANAMEE, Portland.

To Camp Dodge, Des Moines, Ia., base hospital, from Fort Benjamin Harrison, Lieut. HORACE K. RICHARDSON, Bradford.

To Camp Gordon, Atlanta, Ga., base hospital, from Fort Benjamin Harrison, Capt. BERTRAND D. RIDLON, Portland.

To Chicago, Ill., for instruction, and on completion *to Fort Oglethorpe* for duty, from Camp Grant, Lieut. RALPH W. WAKEFIELD, Bar Harbor.

To Hoboken, N. J., Lieut. CHARLES S. WRIGHT, Portland.

To Rockefeller Institute, for instruction, and on completion *to Fort McPherson, Ga.,* base hospital, Lieuts. HENRY K. STINSON, Augusta; CARL G. DENNETT, Unity.

Maryland

To Camp Greenleaf, Evacuation Hospital No. 4, Capt. EDWARD E. LAMKIN, Vienna.

To Camp Hancock, Augusta, Ga., base hospital, from Fort Benjamin Harrison, Lieuts. PATRICK F. McGUIRE, IRVING K. LOVETT, Baltimore.

To Camp Meade, base hospital, from Fort Benjamin Harrison, Lieut. ERWIN E. MAYER, Baltimore.

To Camp Travis, Fort Sam Houston, member of board for examination for tuberculosis, from Camp McClellan, Capt. CHARLES W. RAUSCHENBACH, Baltimore.

To Fort Oglethorpe, Ga., for duty with Hospital Train No. 22, Lieut. FRANK L. JENNINGS, Hamilton.

To Fort Sam Houston, Texas, for duty, from Fort Benjamin Harrison, Lieut. HERTEL P. MAKEL, Baltimore.

To Rockefeller Institute, for instruction in therapy of pneumonia, Lieut. HENRY M. THOMAS, Baltimore.

To Walter Reed General Hospital, for instruction in tuberculosis examinations, Lieut. LOUIS L. JACOBS, Baltimore.

To Washington, D. C., for duty at the Army Medical Museum in connection with supplying illustrations for lecture work, from Baltimore, Major ROBERT T. TAYLOR, Baltimore.

Massachusetts

To Birmingham, Ala., to inspect a site proposed for a general hospital and on completion to his proper station, Major ELLIOT G. BRACKETT, Boston.

To Camp McClellan, base hospital, from Fort Oglethorpe, Capt. DONALD R. GILGILLAN, Worcester.

To Camp Sevier, for duty in his specialty, from Syracuse, N. Y., Lieut. HENRY R. VIETS, Boston; from Fort Benjamin Harrison, Lieut. TIMOTHY J. SULLIVAN, Watertown.

To Camp Taylor, Louisville, Ky., base hospital, from Fort Benjamin Harrison, Capt. CHARLES L. UPTON, Shelburne.

To Cleveland, Ohio, for instruction and on completion to his proper station, from Fort Ethan Allen, Lieut. HERBERT B. PERRY, Northampton.

To Fort Riley, Kan., for duty, from Fort Benjamin Harrison, Capt. ERIK S. J. JOHNSON, New Bedford.

To Gettysburg, Pa., for duty with Field Hospital and Ambulance Co. No. 29, Lieut. CHARLES H. WILSON, Chelsea.

To New York City, to attend the meeting of the Carnegie Foundation from Boston, Major HORACE D. ARNOLD, Boston; *to Bellevue Hospital* for instruction and on completion to Camp Pike, base hospital, from Fort Benjamin Harrison, Lieut. NORMAN M. SCOTT, Boston.

To Philadelphia, Pa., University Hospital, for instruction and on completion to Camp Dix, base hospital, from Fort Benjamin Harrison, Lieut. GEORGE W. TULLY, Southbridge.

To Philippine Islands, for duty, from Fort Benjamin Harrison, Lieut. HERBERT B. PRIEST, Ayer.

To Washington, D. C., to report in person to the Surgeon-General of the Army for duty in his office, from Boston, Mass., Major HORACE D. ARNOLD, Boston.

To his home and honorably discharged from Camp Devens, Lieut. JOHN J. STACK, Boston.

Michigan

To Ann Arbor, Mich., Psychopathic Hospital, for intensive training, from Fort Benjamin Harrison, Major FREDERICK H. NEWBERRY, Detroit.

To Army Medical School, for instruction in orthopedic work, Lieuts. AUGUST E. GEHRKE, WILLIAM S. GONNE, Detroit.

To Boston, for instruction and on completion *to Camp Jackson,* Columbia, S. C., base hospital, from Fort Benjamin Harrison, Lieuts. CARL A. MITCHELL, Benton Harbor; BRUNO J. SOWICKI, Detroit.

To Camp Custer, for duty, from Camp Sherman, Capt. Orton H. Clark, Kalamazoo; Lieut. CRAWFORD W. McCORMICK, Detroit.

To Camp Devens, Ayer, Mass., base hospital, from Fort Benjamin Harrison, Lieut. VICTOR H. DeSOMOSKEOY, Flint.

To Camp Dix, Wrightstown, N. J., base hospital, Lieut. LEANDER P. FERNANDEZ, Eau Claire.

To Camp Dodge, Des Moines, Iowa, base hospital, Capt. WALTER S. SHARPE, Dowagiac.

To Camp Grant, Rockford, Ill., base hospital, from Fort Benjamin Harrison, Capt. HENRY J. MEYER, Saginaw; Lieut. ELLSWORTH P. MILLS. Detroit; ELLSWORTH ORTON, Pontiac.

To Camp Jackson, Columbia, S. C., as a member of board for examination for tuberculosis, from Camp McClellan, Capt. CHARLES H. MERRILL, Detroit; for temporary duty in the base hospital, from Fort Benjamin Harrison, Lieut. ESLI T. MORDEN, Adrian.

To Camp Sherman, base hospital, from Fort Benjamin Harrison, Lieut. JEROME F. BERRY, Kalamazoo.

To Camp Taylor, Louisville, Ky., base hospital, Lieut. SAMUEL E. GEIST, Detroit; GEORGE F. LISTER, Hillman; HARLEN MacMULLEN, Manistee.

To Chicago, Northwestern University Dental School, for instruction, and on completion *to Camp Shelby,* base hospital, Lieut. DAVID D. TODD, Calumet.

To New York City, as member of examining board and recruiting officer, from Physical Examining Unit, Aviation Section, Capt. DAVID H. WEBSTER, Rudyard.

To Rockefeller Institute, for instruction and on completion *to Fort Oglethorpe,* base hospital, from Fort Benjamin Harrison, Capt. EDWIN J. EVANS, Greenland.

To the inactive list on account of being physically disqualified for active service, from Camp Sherman, Lieut. EDWARD J. AGNELLY, Detroit.

Minnesota

To Camp Lee, base hospital, from Fort Oglethorpe, Lieut. CARL C. COWIN, Adrian.

To Camp Pike, base hospital, from Fort Benjamin Harrison, Capt. ROBERT H. MONAHAN, International Falls.

To Camp Sherman, base hospital, from Fort Benjamin Harrison, Lieut. GARNETT BELOTE, Caledonia.

To Cleveland, for instruction and on completion *to Camp Greene,* base hospital, Lieut. RALPH B. BETTMAN, Rochester.

To Fort Sam Houston, Texas, for duty from Fort Benjamin Harrison, Lieut. CLEON J. GENTZKOW, Minneiska.

To New York City, Bellevue Hospital, for instruction and on completion *to Camp Taylor,* base hospital, from Fort Benjamin Harrison, Lieut. CARL N. HARRIS, St. Paul; to proceed to Camp Upton, Lieut. GORDON G. St. CLAIR, Section Thirty.

To Pittsburgh, for intruction and on completion *to Camp Grant,* Rockford, Ill., base hospital, from Fort Benjamin Harrison, Lieut. IRAN B. MAERCKLEIN, Renville.

To Rantoul, Ill., for duty, from Fort Riley, Capt. CHESTER H. CLARK, Duluth.

To the inactive list on account of being physically disqualified for active service, from Camp Grant, Lieut. WARD AKESTER, Marshall.

Mississippi

To Camp Meade, Annapolis Junction, base hospital, from Fort Oglethorpe, Lieuts. CHARLES G. BELL, Canton; LEONIDAS F. BARRIER, Greenwood.

To his home and the inactive list, from Fort Des Moines, Lieuts. BENJAMIN T. WILLIAMSON, Greenwood; THOMAS E. PHILLIPS, Whynot.

Missouri

To Boston, City Hospital, for instruction and on completion *to Camp Dix,* base hospital, from Fort Benjamin Harrison, Capt. ELBERT J. LEE, Jr., St. Louis.

To Camp Dodge, Des Moines, Iowa, base hospital, from Fort Benjamin Harrison, Lieut. LEWIS E. J. BROWNE, Lewistown.

To Chicago, Northwestern University Dental School, for instruction and on completion *to Camp Hancock,* base hospital, Lieut. CLAUDE E. FRAZIER, Kansas City; *to Camp Logan,* base hospital, Lieut. FRANK M. BARNS, Brashear.

To Fort Riley, Kansas, for instruction, from Jefferson Barracks, Capt. ABRAHAM C. LEGGAT, St. Louis.

To New York City, Cornell Medical College, for instruction in military roentgenology, from Camp Funston, Lieut. ZACHARIAN G. JONES, Kansas City.

To Philadelphia, to give instruction in the school of plastic and oral surgery, and on completion of this duty to return to his proper station, Major VILRAY P. BLAIR, St. Louis.

Montana

To New Orleans, Charity Hospital, for instruction and on completion *to Camp Travis,* base hospital, from Fort Benjamin Harrison, Lieut. GROVER C. SHERRARD, Opheim.

Nebraska

To Fort Riley, Kan., for duty with Evacuation Hospital No. 1, from School of *Military* Roentgenology, Lieut. IRA H. LOCKWOOD, Lincoln.

To Pittsburgh, for instruction and on completion *to Camp Dodge,* base hospital, from Fort Bejamin Harrison, Lieut. CREIGHTON D. WILLIAMS, Genoa.

To Rockefeller Institute, for instruction in laboratory work, Capts. WILLIAM W. DeWOLFE, Bennet; HARRY M. BONNIWELL, Lincoln.

Nevada

To Camp Dodge, Des Moines, Iowa, for duty, from Fort Leavenworth, Lieut. DELOS A. TURNER, Goldfield.

To Camp Shelby, Hattiesburg, Miss., base hospital, from Fort Riley, Lieut. WILLIAM J. CIRCE, Carson City.

To Fort Oglethorpe, for duty, Lieut. ROLAND D. RUSSELL, Owyhee.

New Hampshire

To Camp Gordon, Atlanta, Ga., base hospital, from Fort Benjamin Harrison, Lieut. OSWALD S. MAYNARD, Nashua.

New Jersey

To Army Medical School, Washington, D. C., for instruction in orthopedic surgery, from Boston, Lieut. FRANK W. PINNEO, Newark.

To Camp Devens, as member of a board for examination for tuberculosis, from Walter Reed General Hospital, Lieut. SAMUEL R. FAIRCHILD, Carney Point.

To Camp Dix, Wrightstown, N. J., base hospital, from Fort Oglethorpe, Lieuts. ALFRED L. ELLIS, Metuchen; GLENDON R. LEWIS, Newark.

To Columbus Barracks, Ohio, for duty in his specialty, from Gettysburg, Pa., Lieut. AMBROSE F. DOWD, Newark.

To Fort Porter, N. Y., for duty with Hospital Unit A, from Cornell Medical College, Lieut. PETER G. FAGONE, Hackensack.

To Princeton, N. J., Princeton University, as recruiting officer, Lieut. ANTHONY C. ZEHNDER, Newark.

To Yaphank, L. I., N. Y., for duty, Capt. WILLIAM J. CONDON, New Brunswick.

New York

To Army Medical School, Washington, D. C., for duty, from Fort Benjamin Harrison, Lieut. SAUL L. MEYLACKSON, New York City; for instruction in orthopedic surgery, from Camp Bartlett, Westfield, Mass., Lieut. FRANCIS J. A. BENNETT, Auburn; from Camp Taylor, Lieut. HUBERT E. CHAUVIN, Brentwood; Lieut. ALFRED M. RIDWELL, New York.

To Atlanta, Ga., for duty in the department laboratory, from Army Medical School, Lieut. MANNING C. FIELD, Brooklyn.

To attend conference of the State Hospital Development Commission, New York City, Major THOMAS W. SALMON, Staten Island.

To Austin, Tex., school of aeronautics, for duty, from Fort Riley, Lieut. FRANK A. JOHNSTON, Kingston.

To Boston, for instruction and on completion *to Camp Jackson,* Columbia, S. C., base hospital, from Fort Benjamin Harrison, Lieut. ALEXANDER S. SIM, Brooklyn.

To Boston, Massachusetts General Hospital, for instruction and on completion *to Camp Lee,* base hospital, from Fort Benjamin Harrison, Lieut. SAMUEL ZWERLING, Brooklyn.

To Camp Custer, Battle Creek, Mich., base hospital, from Fort Benjamin Harrison, Capt. ALFRED W. ARMSTRONG, Canandaigua; Capt. EUGENE F. CONNALLY, Troy.

To Camp Devens, Ayer, Mass., as member of board for examination for tuberculosis, from Walter Reed General Hospital, Capt. THEODORE J. ABBOTT, New York; Lieut. EDWARD P. EGLES, New York; Lieut. CLYDE D. OATMAN, Poolville; for duty in the base hospital, from Syracuse, Lieut. RAYMOND C. HILL, Bath; for duty in the base hospital, from Fort Benjamin Harrison, Lieut. LEON H. CORNWALL, New York.

To Camp Dix, Wrightstown, N. J., base hospital, from Fort Oglethorpe, Lieut. HAROLD F. MICKLEY, Seneca Falls.

To Camp Doniphan, Fort Sill, Okla., base hospital, from Fort Benjamin Harrison, Lieut. GEORGE W. BATT, Kennedy; from Neurological Institute, New York City, Lieut. VINCENT W. WEISS, New York.

To Camp Gordon, as member of board for examination for tuberculosis, from Fort Oglethorpe, Lieut. FRANCIS A. GLASS, Yonkers.

To Camp Grant, Rockford, Ill., base hospital, from Fort Benjamin Harrison, Capt. JOHN M. KEYES, New York.

To Camp Greenleaf, Fort Oglethorpe, base hospital, Lieut. HERBERT ADLER, New York.

To Camp Hancock, Augusta, Ga., base hospital, from Fort Benjamin Harrison, Lieut. MAX A. LEVY, New York.

To Camp Jackson, Columbia, S. C., Lieut. HARRY V. JUDGE, Albany; Lieut. GEORGE A. BLAKESLEE, New York; Lieut. PAUL B. JOHNSON, New York; Lieut. LEWIS H. TAFT, New York.

To Camp Lee, Petersburg, Va., Capt. GEORGE D. HAMLIN, Brooklyn.

To Camp McClellan, base hospital, Lieut. HARRY D. BREWSTER, New York.

To Camp Meade, Annapolis Junction, base hospital, from Fort Oglethorpe, Lieut. HARBERT W. EMSHEIMER, New York.

To Camp Mills, Garden City, L. I., N. Y., base hospital, from Camp Custer, Capt. CONSTANTINE J. MacGUIRE, New York.

To Camp Pike, Little Rock, Ark., base hospital, Capt. GEORGE E. MAURER, New York; board for examination of command for tuberculosis, from Camp McClellan, Lieut. FRANK J. HERBIG, Staten Island.

To Camp Sevier, Greenville, S. C., base hospital, from Fort Benjamin Harrison, Lieut. MAURICE A. STRUM, New York.

To Camp Shelby, base hospital, from Fort Riley, Kan., Lieut. JOHN W. BURTON, Alpine.

To Camp Sherman, Chillicothe, Ohio, base hospital, from Fort Benjamin Harrison, Capt. HENRY L. SCHELLING, Brooklyn.

To Camp Taylor, Louisville, Ky., base hospital, from Fort Benjamin Harrison, Capt. CARLIN PHILIPS, New York; Lieut. WILLIAM H. NAFIS, Brooklyn; Lieut. WILLIAM A. CONLON, Central Islip; Lieut. EMIL J. PELLINI, New York.

To Camp Travis, Fort Sam Houston, board for examination of command for tuberculosis, from Camp McClellan, Lieut. PATRICK J. HIRST, Middle Grove.

To Camp Upton, Yaphank, L. I., N. Y., board for examination of command for tuberculosis, from Walter Reed General Hospital, Lieut. DANIEL R. ROBERT, Brooklyn; base hospital, from *Fort Oglethorpe,* Lieut. JONATHAN PEARSON, Schenectady.

To Chicago, Northwestern University Dental School, for instruction, and on completion *to Camp Wheeler,* base hospital, Capt. FRANCIS R. LYMAN, Hastings-on-Hudson; Lieut. GEORGE S. SKIFF, Gainesville; Lieut. FREDERICK W. LESTER, Seneca Falls.

To Fort Oglethorpe, for duty with Hospital Train No. 27, Lieut. KARL V. PACE, Mineola; for duty with Hospital Train No. 23, Lieut. DANIEL BACHARACH, New York; for instruction, Lieut. PHILIP R. ZINN, New York; for duty in his specialty at the base hospital, from Camp McClellan, Lieut. FREDERICK C. DEVENDORF, Utica.

To Fort Riley, Kan., base hospital, from Fort Benjamin Harrison, Major BRUCE G. PHILLIPS, New York; for duty in connection with the outbreak of meningitis, and on completion *to Fort Oglethorpe* for duty as instructor, from Fort Benjamin Harrison, Capt. HERBERT L. CELLER, New York.

To Fort Sam Houston, Texas, for duty from Fort Benjamin Harrison, Lieut. RALPH E. CURTI, Brooklyn; Lieut. ROLAND A. DAVISON, Brooklyn; Lieut. JOHN R. EVERS, Elmsford; Lieut. FRANCIS M. FITTS, New York; Lieut. WILLIAM A. SMITH, New York; Lieut. EDWARD H. TONOLLA, New York; Lieut. HAROLD H. GOLDING, Peekskill; Lieut. SEYMOUR C. SCHWARTZ, Syracuse; Lieut. FRANCIS T. DUFFY, Troy.

To Fort Slocum, N. Y., for duty, from Cornell Medical College, Lieut. CHARLES S. GOODWIN, Brooklyn.

To Garden City, L. I., N. Y., for duty, from Fort Sill, Major ATTILIO M. CACCINI, New York.

To Ithaca, N. Y., Cornell University, as recruiting officer, Capt. SAMUEL A. MUNFORD, Ithaca.

To Louisville, Ky., base hospital, from Fort Benjamin Harrison, Lieut. LIPMAN M. KAHN, New York.

To Mineola, L. I., N. Y., for duty, from Fort Benjamin Harrison, Capt. GUY H. TURRELL, Smithtown Branch.

To New Orleans, La., Charity Hospital, for instruction, and on completion *to Fort Riley,* base hospital, Lieut. EDWARD P. FLOOD, Albany.

To New York City, in charge of the physical examining unit, Capt. WILLIAM A. SCRUTON, New York.

To New York City, Roosevelt Hospital, for instruction, and on completion of this duty to *Fort Oglethorpe,* Evacuation Hospital No. 7, from Syracuse, N. Y., Capt. ARCHER D. BABCOCK, Randolph; on completion *to U. S. Army General Hospital,* Capt. JAMES W. DECKER, New York.

To New York City, U. S. Army General Hospital No. 1, for duty, from Academy of Medicine, Capt. JOHN J. COTTER, New York; to Bellevue Hospital for instruction and on completion *to Camp Gordon,* base hospital, from Fort Benjamin Harrison, Lieut. GROVER A. SILLIMAN, Delhi; on completion of course *to Camp Pike,* base hospital, from Fort Benjamin Harrison, Lieut. IRVING S. SCHNEIKRAUT, Brooklyn; on completion of duty *to Camp Taylor,* base hospital, from Fort Benjamin Harrison, Lieut. MYER S. BLOOM, Binghampton; on completion of duty *to Camp Upton,* base hospital, from Fort Benjamin Harrison, Lieut. WILLIAM H. SEWARD, Amsterdam; to Roosevelt Hospital, for instruction and on completion *to Camp Upton,* base hospital, Lieut. EDWIN C. FOSTER, Penn Yan.

To New York City, for instruction in orthopedic work, from Camp Bartlett, Westfield, Mass., Lieut. WALTER H. McSHANE, Troy.

To Philadelphia, University Hospital, for instruction, and on completion *to Camp Dix,* base hospital, from Fort Benjamin Harrison, Lieut. MICHAEL E. NOLAN, Johnstown.

To Pittsburgh, for instruction, and on completion *to Camp Grant, Rockford, Ill.,* base hospital, from Fort Benjamin Harrison, Lieut. SOLOMON SCHLIMBAUM, New York.

To Rockefeller Institute, for instruction, on completion *to Roosevelt Hospital* for a further course of instruction, and on completion to *Wrightstown, N. J.,* Camp Dix, Capt. WAYLAND A. MORRISON, New York; for instruction in laboratory work, from Washington, D. C., Lieut. BYRON D. WHITE, Brooklyn; for instruction and on completion of this course *to U. S. Army General Hospital No. 1, N. Y.,* for temporary duty, from Fort Benjamin Harrison, Lieut. LOUIS F. BOYD, New York; for instruction and on completion *to Walter Reed General Hospital, Takoma Park, D. C.,* for duty, Lieut. FRANCIS X. McGOVERN, New York.

To Scott Field, Belleville, Ill., for duty, from Fort Benjamin Harrison, Lieut. MORRIS WINECK, Troy.

To Walter Reed General Hospital, for instruction in tuberculosis examination, Lieut. FRANCIS ARGUS, Buffalo.

To his home and honorably discharged, from Cornell Medical College, Lieut. BENJAMIN J. BOYD, New York.

To the inactive list, from Camp Wheeler, Macon, Ga., Lieut. CARLTON A. LEE, Brooklyn.

Honorably discharged on account of being physically disqualified for active service, Capt. EDWARD J. WIENCKE, Schenectady.

North Carolina

To Camp Lee, Petersburg, Va., as member of board for examination of command for tuberculosis, from Fort Oglethorpe, Capt. SYLVESTER D. CRAIG, Winston Salem.

To Camp McClellan, Anniston, Ala., base hospital, from Fort Oglethorpe, Lieut. JOHN M. PRESSLY, Belmont.

To Chicago, Northwestern University Dental School, for instruction, and on completion *to Camp Greene,* base hospital, Lieut. CHARLES W. BANNER, Greensboro.

To Fort Oglethorpe, for instruction, Lieut. RALPH S. STEVENS, Smithfield.

Honorably discharged on account of being physically disqualified for active service, from Fort Des Moines, Lieuts. JAMES S. THOMPSON, Dunn; FOSTER F. BURNETT, Wilmington.

North Dakota

To Camp Meade, Annapolis Junction, for duty, from Camp American University, Lieut. EDWARD F. KENNEDY, White Earth.

To Fort Benjamin Harrison, for instruction in tuberculosis examination, Lieut. HERBERT B. WENTZ, Verona.

To Fort Riley, base hospital, Lieut. BERNARD S. NICKERSON, Mandan.

Ohio

To Allentown, Pa., for duty with Base Hospital No. 31, from Rockefeller Institute, Lieut. DAVID L. FARLEY, Youngstown.

To Army Medical School, for instruction, Lieut. CHARLES A. STAMMEL, JR., Cincinnati.

To Camp Dix, Wrightstown, N. J., base hospital, Capt. WILLIAM A. QUINN, Portsmouth.

To Camp Grant, Rockford, Ill., base hospital, from Fort Benjamin Harrison, Lieut. IVAN I. YODER, Cleveland.

To Camp Greene, N. C., base hospital, from Fort Benjamin Harrison, Lieuts. WALTER H. MYTINGER, Chillicothe; NICHOLAS L. ZINNER, Cleveland.

To Camp Jackson, Columbia, S. C., as member of board for examination of command for tuberculosis, from Camp McClellan, Lieut. WILLIAM S. P. DONEHOO, Wintersville.

To Camp Taylor, Louisville, Ky., base hospital, Capt. ELMER A. KLEIN, Norwood.

To Columbus, Ohio, Ohio State University, as recruiting officer, Lieut. AUSTIN H. SEEDS, Columbus, Ohio.

To Fort Benjamin Harrison, base hospital, from Fort Benjamin Harrison, Major HENRY L. WOODWARD, Cincinnati; for instruction in tuberculosis examination, Lieut. CHARLES B. HAMMA, Springfield.

To Fort Oglethorpe, for instruction, Lieut. JOHN A. MEEK, Lorain.

To Fort Sam Houston, Texas, for duty, from Fort Benjamin Harrison, Lieut. HAROLD O. BROWN, Cincinnati.

To New Orleans, Charity Hospital, for instruction, and on completion *to Fort Riley,* base hospital, Lieut. JOHN M. STEEL, Cleveland; to proceed to Camp Beauregard, Lieut. JOHN M. STEEL, Lakewood.

To Philadelphia, for duty with Base Hospital No. 38, Second Regiment Armory, from New York Post-Graduate Hospital, Lieut. ROBERT B. PRATT, Bellefontaine.

To San Diego, Calif., Rockwell Field, for duty, from Fort Riley, Lieut. JULIUS C. KRAMER, Elyria.

To the inactive list, from Fort Des Moines, Lieut. LOUIS A. CORNISH, Cincinnati.

Oklahoma

To Chicago, Northwestern University Dental School, for instruction, and on completion *to Camp Dodge,* Des Moines, Iowa, from Fort Riley, Capt. GEORGE D. McLEAN, Oklahoma; for instruction, from Camp Doniphan, Fort Sill, Okla., Lieut. RAYMOND H. FOX, Altus; from Fort Sam Houston, Lieut. WILLIAM G. HUSBUND, Gould.

To Fort Omaha, Neb., for duty, from post hospital, Fort Omaha, Lieut. BURTON FAIN, Frederick.

To Fort Sam Houston, Texas, for duty from Fort Benjamin Harrison, Lieut. JOHN W. WHISENANT, Duncan.

To Rockefeller Institute, for instruction in laboratory work, Lieut. THOMAS A. HARTGRAVES, Soper.

Oregon

To Camp Lewis, American Lake, Wash., for duty, Lieut. DWIGHT F. MILLER, Portland, Ore.

To Chicago, for instruction, and on completion *to return to his proper station,* from Fort Columbus, Wash., Lieut. LLOYD H. MOTT, Salem.

Pennsylvania

To Army Medical School, Washington, D. C., for instruction in orthopedic surgery, Lieut. GUY C. BOUGHTON, Erie; for instruction, from Camp Hancock, Lieut. ZERA E. BOLIN, Philadelphia.

To Atlanta, Ga., for duty in the department laboratory, Lieut. RUBEN A. E. PETERSON, Allentown.

To Boston, City Hospital, for instruction, and on completion *to Camp Dix,* base hospital, from Fort Benjamin Harrison, Lieut. WILLIAM J. REDDY, Shenandoah.

To Camp Bowie, Fort Worth, Texas, base hospital, Capt. JAMES G. FLYNN, Ridgway.

To Camp Custer, Battle Creek, as sanitary inspector, Major JAMES F. EDWARDS, Pittsburgh; at base hospital, from Fort Oglethorpe, Lieut. FRANK B. STEVENSON, Indiana.

To Camp Dix, Wrightstown, N. J., base hospital, from Fort Oglethorpe, Lieut. CHARLES C. GANS, Chambersburg.

To Camp Grant, Rockford, Ill., base hospital, from Fort Benjamin Harrison, Lieut. FRANCIS J. KELLY, Philadelphia; Lieut. REES S. LLOYD, Pittsburgh.

To Camp Greenleaf, Fort Oglethorpe, for duty with Hospital Train No. 26, Lieut. FRANK F. BARTHMAIER, Philadelphia; for instruction, Lieut. HERBERT COOPER, Philadelphia; to Evacuation Hospital No. 5, for duty, Lieut. EDWARD A. PITCAIRN, Wilkinsburg.

To Camp Hancock, Augusta, Ga., to direct the nutritional survey of this camp and on completion of this duty to return to his proper station, Capt. CASPAR W. MILLER, Wallingford.

To Camp Jackson, as member of board for examination of command for tuberculosis, from Fort Oglethorpe, Lieut. THOMAS L. COLEY, Philadelphia; in base hospital, from Fort Benjamin Harrison, Lieut. EVAN W. MEREDITH, Pittsburgh.

To Camp Kelly, San Antonio, Texas, for duty, from Fort Oglethorpe, Lieut. WILLIAM C. T. POULSON, Philadelphia.

To Camp Lee, Petersburgh, Va., as member of board for examination of command for tuberculosis, from Walter Reed General Hospital, Capt. ELMER G. WEIBEL, Erie; Lieut. JOHN DONNELLY, Philadelphia; in base hospital, from Fort Oglethorpe, Lieut. OSCAR J. KINGSBURY.

Nesquehoning; Lieut. JOSEPH J. KOCYAN, Plains; Lieut. HOWARD C. DOWN, Wycox.

To Camp McClellan, Anniston, Ala., base hospital, from Fort Oglethorpe, Lieut. JOHN W. MERRYMAN, Kennett Square.

To Camp Meade, Annapolis Junction, Md., base hospital, from Fort Oglethorpe, Major FRED H. CLARK, *Wilkes-Barre; as member of board* for examination of command for tuberculosis, from Walter Reed General Hospital, Lieut. ABRAHAM TRASOFF, Philadelphia.

To Camp Pike, Little Rock, Ark., as member of board for examination of command for tuberculosis, from Camp McClellan, Lieut. HARRY O. MATEER, Pittsburgh.

To Camp Taylor, Louisville, Ky., base hospital, from Fort Benjamin Harrison, Lieut. FRANCIS E. EVANS, *Philadelphia.*

To Camp Travis, Fort Sam Houston, Texas, base hospital, from Fort Oglethorpe, Lieut. WILLIAM R. BREADY, Philadelphia; Lieut. *REUBEN* A. BOGIA, Philadelphia.

To Camp Upton, Yaphank, L. I., N. Y., base hospital, from Fort Oglethorpe, Lieut. CHARLES E. MULLIN, Cambridge Springs; as member of board for examination of command for tuberculosis, from Walter Reed *General Hospital, Lieut. RALPH E. HENRY,* Erie.

To Camp Wadsworth, Spartanburg, S. C., base hospital, from Fort Oglethorpe, Lieut. CLARK H. YEAGER, Wilkes-Barre.

To Chanute Field, for duty, from Fort Riley, Lieut. THOMAS E. JONES, Philadelphia.

To Chicago, Northwestern University Dental School, for instruction, and on completion *to Camp Sheridan,* base hospital, from Fort Oglethorpe, Lieut. SAMUEL McCLARY, III, Philadelphia.

To Fort McHenry, Md., for duty in the U. S. Army General Hospital, No. 2, from Johns Hopkins Hospital, Baltimore, Lieut. STEWART C. BOWERS, New Freedom.

To Fort Monroe, Va., for duty, from Camp Wheeler, Lieut. CHARLES C. CROUSHORE, *Greensburg.*

To Fort Oglethorpe, for instruction, from Fort McPherson, Lieut. *VICTOR J. P. JOURDAN, Bristol;* for duty with Hospital Train No. 28, Lieut. CLARENCE H. KETTERER, Butler.

To Fort Porter, N. Y., for duty with Hospital Unit "A," Lieut. PERCY D. MOULTON, Germantown, Philadelphia; Lieut. CHARLES A. FIFE, Philadelphia; Lieut. DOUGLAS P. MURPHY, Philadelphia.

To Fort Sam Houston, Texas, for duty from Fort Benjamin Harrison, Lieut. RICHARD S. MAGEE, Altoona; *Lieut.* CHARLES R. SNYDER, Marysville; Lieut. DANIEL C. *HANKEY,* Pittsburgh; Lieut. WILLIAM W. McCAW, Pittsburgh; Lieut. MYRON P. RUDOLPH, Pittsburgh; Lieut. MAURICE S. WEAVER, Pittsburgh.

To Hoboken, N. J., Port of Embarkation, as officer in charge of Mobile Laboratory, Thirty-First Division, Lieut. HARRY E. UNGERLEIDER, Philadelphia.

To Louisville, Ky., for conference with the Kentucky Committee on Medical Defense, and on completion *to Indianapolis and Memphis, Tenn.,* to confer with State Committees on Medical Defense and itinerant boards, and on completion *to his proper station,* Major HENRY D. JUMP, Philadelphia.

To New York City, Bellevue Hospital, *for instruction,* and on completion *to Camp Gordon,* base hospital, from Fort Benjamin *Harrison,* Lieut. LAWRENCE C. MOORE, *Chatham.*

To Philadelphia, University Hospital, for instruction, and on *completion to Camp Gordon, base hospital, from* Fort Benjamin Harrison, Lieut. JOHN L. LAVIN, Kingston; on completion *to Camp Dix,* base hospital, from Fort Benjamin Harrison, *Lieut.* HARRY P. *SMITH,* Pittsburgh.

To Rockefeller Institute, for instruction, and on completion *to Fort Oglethorpe,* base hospital, from Fort Benjamin Harrison, Lieut. WILLIAM H. NIX, Indiana; for instruction in laboratory work, Lieut. *OTTO C. HIRSCH, Philadelphia.*

To the inactive list, from Camp Custer, Lieut. ROBERT C. JOHNSTON, Springdale.

Honorably discharged on account of being physically disqualified for active service, Lieut. SAMUEL H. KOHLMAN, Philadelphia.

Philippine Islands

To Philippine Department, Manila, P. I., *for* duty, Lieut. PAUL McC. LOWELL, Manila.

Rhode Island

To Army Medical School, for instruction, Lieut. CLYDE B. COVEY, Howard.

South Carolina

To Camp Greenleaf, Fort Oglethorpe, for instruction, from Army Medical School, Lieut. KARL L. ABLE, Leesville.

To Fort Oglethorpe, for instruction, Lieut. VICTOR M. ROBERTS. Blackburg.

To Fort Riley, Kan., for duty, from Fort Benjamin Harrison, Lieut. LEWIS F. ROBINSON, Pickens; from Jefferson Barracks, Lieut. WILLIAM G. WHITE, York.

To Fort Sam Houston, Texas, for duty, *from* Fort Benjamin Harrison, Lieut. ALBERT B. PAVY, Charleston.

To New Orleans, Charity Hospital, for instruction, and on completion *to Camp Beauregard,* base hospital, Lieut. BENJAMIN F. WYMAN, Aiken.

To New York City, Bellevue Hospital, for instruction, and on completion *to Camp Gordon,* base hospital, from Fort Benjamin Harrison, Lieut. PRESTON J. JOHNSTON, Estell.

South Dakota

To Fort Riley, for duty, Lieut. WILLIAM E. CLARK, Aberdeen.

To Fort Sam Houston, Texas, for duty, from Fort Benjamin Harrison, Lieut. EARLE D. QUINNELL, Sisseton.

To Rockefeller Institute, for instruction in laboratory work, Lieut. GUSTAVE A. LANDMANN, Scotland.

Tennessee

To Boston, for instruction, and on completion *to Camp Jackson,* Columbia, S. C., base hospital, *from* Fort Benjamin Harrison, Lieut. LISLE B. ROBINSON, Memphis.

To Camp Jackson, Columbia, S. C., *base* hospital, from Fort Oglethorpe, Lieut. NICHOLAS ARDAN, Bristol.

To Camp Kearney, Linda Vista, Calif., base hospital, from Fort *Oglethorpe,* Lieut. HUGH T. *MOORE,* Chattanooga.

To Chicago, Northwestern University *Dental* School, for instruction, and on completion *to Camp Beauregard,* base hospital, Capt. WILLIAM A. CARNES, Memphis.

To Fort Oglethorpe, for instruction, Lieut. JOHN H. HERRING, Memphis.

To Fort Sam Houston, Texas, for duty, from Fort Benjamin Harrison, *Lieuts. JAMES W. McCLAREN, Jackson; HENRY L. FRASER,* Nashville.

To Memphis, Dyersburg, Union City, Jackson, Brownsville, Paris, Clarksville, Franklin, Columbia, Fayettesville, *Murfreesboro,* Chattanooga, Cleveland, Morristown, Bristol, Johnson City, Knoxville, Nashville, for the purpose of examining applicants *for* the Medical Reserve Corps, Lieuts. HARRISON H. SHOULDERS, Nashville; SIDNEY S. EVANS, Ripley.

To Nashville, Tenn., for duty, Lieuts. HARRISON H. SHOULDERS, Nashville; SIDNEY S. EVANS, Ripley.

To San Antonio, Texas, Camp Kelly, for duty, from Fort Oglethorpe, Lieut. FLEMING J. O'CONNOR, Jackson.

To Tenafly, N. J., Base Hospital No. 66, Venereal Hospital, Lieut. HARLEY L. ACUFF, Knoxville.

To his home and the inactive list, from Fort Des Moines, Lieuts. GEORGE W. BUGG, Nashville; THOMAS W. RHODES, Whiteville.

Honorably discharged, *from* Camp Wheeler, Lieut. ROBERT B. GRIFFIN, Ridgely.

Texas

To Austin, Texas, University of Texas, as recruiting officer, Lieut. ROBERT A. TRUMBULL, Dallas.

To Boston, and on completion *to Fort Sam Houston,* base hospital, Major CHARLES S. VENABLE, San Antonio.

To Camp Grant, Rockford, Ill., base hospital, from Fort Benjamin Harrison, Lieut. GEORGE L. LANGWORTHY, Lakeview.

To Camp Travis, as member of board for examination of command for tuberculosis, from Fort Bliss, Capt. CHARLES McC. HENDRICKS, El Paso.

To Chicago, for instruction, from Camp Cody, Capt. THOMAS C. BROOKS, *Bay City,* Texas.

To Fort Sam Houston, Texas, for duty, from Fort Benjamin Harrison, Lieuts. DOUGLAS H. MEBANE, ROBERT K. SIMPSON, PAUL H. STREIT, Galveston; WILLIAM D. PETIT, *Marfa,* FRANK H. MOOSE, Weatherford.

To Fort Worth Texas, for duty, from Fort Sill, Lieut. EUGENE W. R. WILLIAMS, Celeste.

To report by wire to the commanding general, Southern Department, for assignment to duty, Lieut. BROOKS G. GRANT, *Fort Worth.*

To his home and the inactive list, from Camp Cody, Lieut. PAUL GALLAGHER, El Paso.

To his home and the inactive list on account of being physically disqualified for active service, from Camp Sherman, Lieut. *JULIUS H.* HILL, Heath.

Virginia

To Army Medical School, Washington, *D. C.,* for instruction, Lieut. BERNARD L. JARMAN, Charlottsville.

To Camp Lee, Petersburg, Va., for duty, from Camp Wheeler, Lieut. WILLIAM S. WILEY, Bristol.

To Fort Sam Houston, Texas, for duty, from Fort Benjamin Harrison, Lieut. CHARLES W. SALE, Fredericksburg.

To New York City, Roosevelt Hospital, for instruction, and *on* completion *to Camp Lee,* base hospital, Capt. EDWARD M. PARKER, Emporia; *to Bellevue Hospital,* for instruction, and on completion *to Camp Gordon,* base hospital, from Fort Benjamin Harrison, Lieut. CHARLES PHILLIPS, Richmond.

To Philadelphia, for instruction in orthopedic surgery, and on completion to return to inactive list, Lieut. KYLE B. STEELE, Charlottesville.

Vermont

To Army Medical School, Washington, D. C., for instruction *in* orthopedic surgery, from Fort Ethan Allen, Lieut. JOHN *D.* THOMAS, Burlington.

To Baltimore, Phipps Clinic, *for intensive* training in his specialty, from Gettysburg, Pa., Lieut. STEWART L. GOODRICH, Waterbury.

To Boston, for instruction in *orthopedic surgery, from* Fort Ethan Allen, Capt. HARRY L. FROST, Williston.

To Fort Riley, Kan., base hospital, from Fort Benjamin Harrison, Capt. HENRY C. JACKSON, Woodstock.

To Rockefeller Institute, for instruction in laboratory work, from Fort Ethan *Allen, Capt.* FREDERICK E. CLARK, *Burlington; to Fort Oglethorpe,* base hospital, from Fort Benjamin Harrison, Lieut. GEORGE ROBERTS, Chester.

Washington

To Camp Hancock, Camp Sevier, Camp Wadsworth and Camp Greene, to make a nutritional survey of the camps, and on completion to return to his proper station, from Camp American University, Lieut. ROLLA B. HILL, Colfax.

To Chicago, for instruction, Major DEAN LEWIS; from Vancouver Barracks, Lieut. WALLACE A. PRATT, Walla Walla.

To Fort Sam Houston, Texas, for duty, from Fort *Benjamin* Harrison, Lieut. *LEO S.* TRASK, Burlington.

West Virginia

To Camp Custer, Battle Creek, Mich., base hospital, from Fort Benjamin Harrison, Lieut. WILLIAM L. RAYL, Huntington.

To Camp Devens, as member of board for examination of command for tuberculosis, from Walter Reed General Hospital, Capt. GEORGE H. BARKSDALE, Charleston.

To Chicago, Northwestern University Dental School, for instruction, and on completion *to Rockford, Ill.,* base hospital, from Fort Benjamin Harrison, Capt. MAURICE C. JAMES, Hinton.

To Fort Oglethorpe, for instruction, Lieut. WILLIAM O. HEARN, Bluefield; Lieut. HERBERT C. KINCAID, Summersville.

To New York City, Cornell Medical College, for instruction in military roentgenology, from Fort Benjamin Harrison, Lieut. HOMER W. GRIMM, St. Marys.

To Tenafly, N. J., for duty at Base Hospital No. 86, venereal hospital, from Fort Benjamin Harrison, Lieut. RUSH F. FARLEY, Ivaton.

Wisconsin

To Camp Cody, base hospital, from Fort Benjamin Harrison, Lieut. ELMER S. JOHNSON, Oregon.

To Fort Leavenworth, Kan., for duty in the department laboratory, Capt. MILTON W. HALL, Mendovi.

To Fort Sam Houston, Texas, for duty from Fort Benjamin Harrison, Lieut. BENJAMIN B. ROWLEY, Milwaukee.

To Rantoul, Ill., for duty, from Fort Riley, Lieut. PAUL H. FOWLER, Plain.

To Rockefeller Institute, New York City, for instruction in laboratory work, from Houston, Texas, Lieut. EDWARD P. COOKE, Milwaukee.

Wyoming

To Rockefeller Institute, for instruction in laboratory work, Lieut. GEORGE W. EARLE, Lusk.

Association News

MEDICAL ADVISORS TO THE GOVERNORS OF STATES

Physicians Selected for the Purpose of Establishing and Conducting the Work of the Medical Advisory Boards in Connection with the Selective Service Regulations

Under date of October 19, the following report of the Board of Trustees was submitted to the members of the House of Delegates of the American Medical Association, and was adopted unanimously by a postal vote:

To the Members of the House of Delegates of the American Medical Association:

Under date of Oct. 13, 1917, Hugh S. Johnson, Lieutenant-Colonel, Judge Advocate, Executive Officer of the Provost Marshall General, acting for the President of the United States and War Department, addressed a letter to the American Medical Association from which we quote:

"We need the active and vigorous cooperation of the American Medical Association. We need the promptest and most thorough action in this regard. Will you not call together a sufficient number of your executive council to authorize this cooperation by the Association, and to consider a definite and concrete proposition which can be presented here, and upon which we can act?"

Specifically, the cooperation desired of the Association is set forth in the following:

"It is planned to establish Medical Advisory Boards, not necessarily integrated with the territorial jurisdiction of either Local or District Boards, but having headquarters with sufficient apparatus and conveniences so located as to be accessible to boards in the portion of the state in which the Advisory Boards are situated. Any case in which the local examining physician has held the registrant disqualified for service (unless the disqualification is obvious) or in which the local physician is in doubt, or in which the registrant feels aggrieved by the decision of the local physician, or where the Local Board or the Government Appeals Agent desires to appeal the findings of the local physician, is to be sent to such Medical Advisory Board for an exhaustive [medical] reexamination upon which the Local Board can proceed to a final determination."

These Medical Advisory Boards will consist of physicians selected for their ability to make thorough and complete physical and mental examinations. This means that the boards shall be composed of specialists competent to make such laboratory and other examinations as may be required. This matter was of such importance and the urgency was so great that, in accordance with the spirit of the recommendation of the Reference Committee on Reports of Officers adopted by the House of Delegates in June, 1917, i. e.:

"We further suggest to the House of Delegates that it formally and officially offer to the government, through adoption of this recommendation, the services and facilities of the American Medical Association for such assistance as may be in its power to render hereafter."

the Board of Trustees, on Oct. 19, 1917, in special session assembled for the purpose of considering the matter, all the members being preser unanimously adopted the following resolutions:

Resolved, That the Board of Trustees for and on behalf of the Ame ican Medical Association accept the invitation to cooperate with t Provost Marshall General in the matter presented in the letter of Lieu Col. Hugh S. Johnson under date of Oct. 13, 1917.

Resolved, That a committee of three be and hereby is appointed wi full power to act in conjunction with the Provost Marshall-General the premises.

The following committee was appointed: M. L. Harris, secretar Board of Trustees; Hubert Work, chairman, House of Delegates, a E. J. McKnight, member of the Board of Trustees.

Respectfully submitted, by order of the Board of Trustees,

M. L. Harris, Secretary, Board of Trustees.

The committee at once proceeded to Washington, D. After consultation with Lieut.-Col. Johnson of the Provo Marshal-General's Office, a conference with representatives the Committee on State Activities of the General Medic Board of the Advisory Commission, Council of Nation Defense, was arranged. At the latter meeting, Drs. Edwa Martin, Philadelphia, F. F. Simpson, Pittsburgh, and Jol D. McLean, Philadelphia, were appointed a committee fro this Committee on State Activities to cooperate with the cor mittee of the American Medical Association, and it w agreed that the six should select a seventh member of th joint committee.

The joint committee met in Washington, D. C., Novemb 1, when on motion of Dr. Edward Martin, Dr. Alexander Craig, secretary of the American Medical Association, w named as the seventh member and made secretary of t joint committee. On motion of Dr. Hubert Work, Dr. Edwa Martin was elected chairman.

The committee was advised that the Provost Marsha General desired to have the joint committee immediately su gest in each state a member of the Medical Reserve Corp not assigned to duty in connection with the National Arn or base hospital, in order that the Surgeon-General of t Army might be requested to order this medical officer in active duty as the medical adviser to the governor of his sta in the erection of the medical advisory boards for the sta The joint committee thereupon proceeded to select a physici in each state to be recommended to act as medical adviser the governor.

Later, the members of the committee received the followi telegram:

You have been appointed a member of committee on Medical Appe Boards of General Medical Board of Council of National Defense. Y are requested to attend an important meeting of this committee at t Council of National Defense, Washington, 11 o'clock, Friday, Nove ber 16.

Franklin Martin, Chairman, General Medical Board.

In compliance with this request, the joint committee m Dr. John D. McLean, secretary of the Committee on Sta Activities of the General Medical Board of the Advisory Con mission, Council of National Defense, reported to t joint committee that it had been necessary to revise the li of medical advisers to the governors, who had been suggest at the previous conference of the joint committee. A numb of such changes had to be made for different reasons, amor which were that the physician selected was on duty elsewher or was connected with a hospital unit, or was an officer his own state. Accordingly, Dr. McLean reported that t following physicians had been selected as medical advise to the governors and requested to report for a conference be held on Saturday, November 18:

Alabama	James Norment Baker, Montgome
Arizona	Francis Eppes Shine, Bisb
Arkansas	Clinton P. Meriwether, Little Ro
California	Henry Howard Sherk, Pasade
Colorado	Horace C. Wetherill, Denv
Connecticut	David Chester Brown, Danbu
Delaware	James A. Draper, Wilmingt
District of Columbia	John Wesley Bovee, Washingt
Florida	Carey Pegram Rogers, Jacksonvil
Georgia	William Clifton Lyle, Augus
Idaho	Warner Hunter Carithers, Mosco
Illinois	Frank Billings, Chica
Indiana	Joseph Rilus Eastman, Indianapol
Iowa	William Wilson Pearson, Des Moin
Kansas	John Franklin Hassig, Kansas C
Kentucky	Louis Samuel McMurtry, Louisvi

Louisiana	Charles Jefferson Miller, New Orleans
Maryland	William Henry Welch, Baltimore
Massachusetts	Fred Lund, Boston
Michigan	Reuben Peterson, Ann Arbor
Minnesota	William James Mayo, Rochester
Mississippi	Walter B. Dobson, Jackson
Missouri	John Young Brown, St. Louis
Montana	Thomas Casey Witherspoon, Butte
Nebraska	August Frederick Jonas, Omaha
Nevada	George McKenzie, Reno
New Hampshire	John Martin Gile, Hanover
New Jersey	Philip Marvel, Atlantic City
New Mexico	John Wilson Elder, Albuquerque
New York	Charles North Dowd, New York
North Carolina	John Wesley Long, Greensboro
North Dakota	Victor Hugo Stickney, Dickinson
Ohio	Charles S. Hamilton, Columbus
Oklahoma	Claude A. Thompson, Muskogee
Oregon	Kenneth Alexander J. MacKenzie, Portland
Pennsylvania	Edward Parker Davis, Philadelphia
Rhode Island	John William Keefe, Providence
South Carolina	Robert Spann Cathcart, Charleston
South Dakota	Fred Angier Spafford, Flandreau
Tennessee	William D. Haggard, Nashville
Texas	Witten Booth Russ, San Antonio
Utah	William Brown Ewing, Salt Lake City
Vermont	John Brooks Wheeler, Burlington
Virginia	Reid White, Lexington
Washington	James R. Yocum, Tacoma
West Virginia	John Egerton Cannaday, Charleston
Wisconsin	L. Rock Sleyster, Waupun
Wyoming	Fred Wood Phifer, Wheatland

The duties of these state medical advisers and of the medical advisory boards were explained by Provost Marshal-General Crowder and Lieut.-Col. Hugh S. Johnson of the Provost Marshal-General's Office. The medical advisers were directed to report to the governors of their state and to offer to assist him in determining the number of districts and territory to be covered by each district as well as in the selection of the personnel of the medical advisory boards.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

County Medical Society Aids War Sufferers.—The Fresno County Medical Society at its meeting, November 6, voted the establishment of a permanent monthy donation of $10 to be turned over to relieve the sufferers from the war in Europe.

New Officers.—The Psychopathic Association of California, at its annual meeting at Los Angeles, November 3, elected Curtis D. Wilbur, president; Edward H. Williams, vice president; William S. James, secretary-treasurer, and Drs. Henry G. Brainerd, Charles L. Allen, Edward H. Williams and Thomas J. Orbison, all of Los Angeles, as medical members of its board of directors.

Personal.—Dr. Everett R. Smith, Los Angeles, is reported to be seriously ill at the California Hospital, Los Angeles. ——Dr. Charles W. Anderson, Los Angeles, has returned after a year's service with the Canadian Army Medical Corps on the western front.——Dr. John T. Davison, Stockton, has been reappointed health officer of San Joaquin County.——Dr. Nathaniel B. Potter, formerly of New York, has transferred his work regarding the metabolic unit to Santa Barbara, where he will continue his research work at the Cottage Hospital.——Dr. Stanley Stillman, San Francisco, has received orders for foreign service.——Dr. Franklin S. Wilcox, Patton, superintendent of the Southern California State Hospital, has been appointed superintendent of the State Hospital at Norwich, Conn., succeeding Dr. Harry Pollack.

ILLINOIS

German, Not General.—At the meeting of the German Hospital Association, held November 15, the question of changing the corporate name of the institute from "The German Hospital of Chicago" to "The General Hospital of Chicago" was voted down, and the institution will retain its original name.

Reconstruction Service.—In the report of the Central Free Dispensary of Rush Medical College it is stated that the reconstruction of invalided soldiers and men and women physically unfit who are needed in the industries will constitute an important part of the work of the institution during the coming year. Eighteen members of the staff of the dispensary are now in the army service.

Personal.—Major William J. Swift, Chicago, commanding the Field Hospital Section of the Thirty-Third Division, Camp Logan, Houston, Texas, has resigned, and his resignation has been accepted to take immediate effect.——Major Eugene G. Clancy, Chicago, formerly of the Seventh Illinois Infantry, and later commander of the One Hundred and Thirtieth Field Hospital, has been appointed Major Swift's successor.——Dr. Clifford C. Ellis, formerly a member of the staff of the Chicago State Hospital, Dunning, has been appointed assistant superintendent of the Watertown State Hospital, succeeding Dr. Edward A. Foley, transferred to similar duty at the Chicago State Hospital.——Dr. Joseph B. Liston, Carlinville, has been appointed a member of the staff of the Jacksonville State Hospital.——Dr. Martin L. Moyer, Hillsboro, was operated on in the Hillsboro Hospital, November 2, for nephrolithiasis, and is reported to be doing well.

IOWA

Field Hospital Unit Formed.—Dr. Francis L. Love, Iowa City, has completed the organization of the Iowa Field Hospital Unit, which he will command. His officers are Drs. Virgil Orin Muench, Nichols; Philip M. Day, Barnes City, and Arthur T. Bailey, Iowa City.

Personal.—Dr. Richard H. Whalen, Tama, has been appointed physician and surgeon to the Sac and Fox Indian Agency, succeeding Dr. Benjamin Thompson.——Dr. Alexander W. Trout, Perry, received a check for $8,000 from Washington, D. C., November 1, on account of services rendered during the Civil War.——Dr. James B. Horner, Lamoni, who suffered a cerebral hemorrhage, October 25, is reported to be improving.——Fire in the office of Dr. George A. Carson, Mount Vernon, October 23, burned out the entire interior of the building.

Hospital News.—At a special meeting of the stockholders of the May Hospital Company in Charles City, October 30, it was voted that the corporation be dissolved.——Miss M. Esther Bayliss, Minneapolis, has been appointed superintendent of the Spencer Hospital, succeeding Miss Della Darling, resigned to take up Red Cross duties in France.——Work has been commenced on the new Children's Hospital in connection with the State University of Iowa, Iowa City, which is to be situated on the West Side of the Iowa River. An appropriation of $150,000 for this institution was made by the last legislature.——The Denison (Iowa) Hospital, announces that it is now thrown open to all physicians.

KENTUCKY

Sanatorium Nearly Full.—Dr. Howard E. LeCates, physician in charge of the Fayette County Tuberculosis Sanatorium, states that there are now fifty patients in the institution, which is within two of its capacity.

New Officers of State Association.—At the sixty-seventh annual meeting of the Kentucky State Medical Association, held in Louisville, November 6 to 9, the following officers were elected: president, Dr. James S. Lock, Barboursville; vice presidents, Drs. Joseph L. Barker, Pembroke; Hazelton H. Stallard, Pikeville, and James C. Douglass, Franklin; councilors, third district, Dr. Joseph N. McCormack, Bowling Green; sixth district, Dr. Robert C. McChord, Lebanon, and ninth district, Dr. James W. Kincaid, Catlettsburg, and delegates to the American Medical Association, Drs. William W. Richmond, Clinton, and Carl L. Wheeler, Lexington (reelected).

LOUISIANA

Infant Clinic.—A free clinic for infants up to the age of 9 months has been established at the Lying-In Hospital, New Orleans. The clinic will be in charge of Dr. George Bloom, and will be open from 11 to 12 o'clock daily.

Personal.—Dr. William H. Robin, superintendent of the New Orleans City Board of Health, was given a handsome gold badge by the employees of his department, November 3.——Dr. George W. Martin, Arnaudville, was made superintendent of oil inspection by the state board of health, October 29.——Dr. Thaddeus P. Bell, New Orleans, has been elected field secretary of the Louisiana Anti-Tuberculosis League for the coming year.——Asst. Surg. Howard F. Smith, U. S. P. H. S., has been appointed, by the president of the state board of health, director of the civil sanitary district surrounding the Thirty-Ninth Division Army Camp.——Dr. Ernest S. Lewis, New Orleans, has been appointed consulting gynecologist; Dr. Charles Chassaignac, consultant in genito-urinary diseases, and Dr. Roy M. Van Wart, psychiatrist, to Charity Hospital, New Orleans.

MARYLAND

Diphtheria at Fullerton.—There has been one fatal case of diphtheria at Fullerton, Baltimore County, and considerable anxiety exists among the parents of children there. Dr. Harry M. Slade, Reisterstown, county health officer, will have all cases of the disease which may develop isolated, and every precaution will be taken to prevent an epidemic.

Personal.—Dr. Lewellys F. Barker, Baltimore, was elected president of the Southern Medical Association at the annual meeting of the association held in Memphis, Tenn.——Dr. Franklin P. Mall, professor of anatomy in the medical department of the Johns Hopkins University, a nationally known authority on anatomy and author of several textbooks on the subject, is critically ill at the Johns Hopkins Hospital, following two operations to remove gallstones.

MICHIGAN

New Hospital.—A new fireproof contagious disease hospital, to cost about $12,000, is to be erected by the St. Luke's Hospital Association, Marquette.

Personal.—Dr. John C. Lampman, Hastings, injured his hip seriously by a fall from a stepladder, November 7.——Dr. Frederick C. Warnshuis, Grand Rapids, chief surgeon of the Pere Marquette System, fractured his leg in a collision between his automobile and another car, November 5.

Health League Recommended.—In his address, made on retiring from the presidency of the Michigan Anti-Tuberculosis Association, Dr. Arthur F. Fischer, Hancock, chief of the medical staff of the Quincy Line, recommended the establishment of a Good Health League, which would come closer to the people than an antituberculosis association could.

MISSOURI

Goodwin and Dercle in St. Louis.—Col. T. H. Goodwin of the British Army Medical Service and Col. C. U. Dercle of the French Army Medical Service were guests of the Medical Section of the State Committee on National Defense at St. Louis, November 16. They delivered addresses before the Chamber of Commerce and the City Club at a luncheon, were enteretained at a dinner at 6 o'clock at the St. Louis Club, and at 8 o'clock adressed a large audience in the Central High School. Colonel Dercle addressed the St. Louis Medical Society, November 17.

Reports of Births.—For failure to report the birth of a child, a St. Louis doctor who had knowledge of the birth was arrested and fined $5, the midwife who delievered the child was fined $10. The baby is blind. After birth the baby developed inflamed eyes which the midwife treated for nine days and then called the physician, who was unable to save the eyes, and failed to report the birth. Commenting on this neglect the St. Louis *Post Dispatch* remarks editorially: "In the light of these facts, we venture the opinion that St. Louis should make an effort to keep as perfect a record of new babies as it does of new corpses."

Personal.—Dr. J. Carl Drake, formerly of St. Louis, now lieutenant in the One Hundred and Thirty-Eighth Infantry (Fifth Missouri) has been confined to the base hospital, Fort Sill, Okla., for several weeks. He was operated on November 1, and will soon be able to resume work in camp.——Dr. E. H. Trowbridge, physician at the tuberculosis hospital and municipal farm of Kansas City, has been elected secretary of the hospital and health board of Kansas City, and will be in charge of the medical inspection of the schoolchildren.——Dr. Guy L. Noyes, dean of the Medical School, University of Missouri, has been relieved from military duty at Camp Funston and returned to Columbia to continue his school duties.——Dr. William W. Duke, Kansas City, was a guest at a joint meeting of the St. Louis Medical Society and the St. Louis Dental Society, November 3, and delivered an address on "Dental Sepsis as a Focal Infection."

MONTANA

Scarlet Fever.—On account of the prevalence of scarlet fever in Helena, a meeting of state and county health officials was held in that city, October 26, at which it was decided to take stringent measures to stamp out the disease. Dr. John H. Dent, East Helena, was appointed deputy county health physician to assist the county physician with the scarlet fever cases.

Hospital Notes.—At the meeting of the board of trustees of the Butte Deaconess Hospital Association, October 31, contracts were signed for an addition to the present building to cost $21,500, and to accommodate forty patients.——The Grandview Hospital, located just outside the city limits of Malta, was destroyed by fire, October 24. All patients were safely removed from the institution.

Personal.—Dr. Herbert H. Judd, Bozeman, has been appointed a member of the State Board of Medical Examiners, succeeding Dr. William L. Renick, Butte, resigned.——Dr. Julius H. P. Gauss, Lewistown, has been nominated by the administrative board of the Mayo Clinic, Rochester, Minn., for a fellowship in internal medicine in the Mayo Foundation.——Dr. Oscar M. Lanstrum, Helena, has been elected a vice president, and Drs. Thomas C. Witherspoon, Butte, and William F. Cogswell, Helena, members of the executive board of the Montana State Association for the Study and Prevention of Tuberculosis.

NEBRASKA

Friction in State Board.—The state board of health, October 19, made an investigation of the friction in the administration staff of the board. Health Commissioner Tenney, Mrs. Andrews, the statistician, and Dr. William F. Wild, state epidemiologist, are said to be involved in this investigation.

Personal.—Dr. Benjamin F. Williams, superintendent of the Lincoln State Hospital for the Insane, presented his resignation to take effect Jan. 1, 1918, and will enter private practice in Lincoln.——Dr. William J. Davies, Fremont, who was operated on for the removal of gallstones in the Nicholas Senn Hospital, Omaha, October 31, is reported to be making satisfactory progress toward recovery.

NEW YORK

New York City

The Harvey Society.—The second of the present course of Harvey Society lectures was given at the New York Academy of Medicine, November 24, by Dr. Linsly R. Williams, on "Medical Problems of the War."

In Memory of Dr. Lewis Atterbury Stimson.—Exercises in honor of the memory of Dr. Lewis Atterbury Stimson, professor of surgery in Cornell University Medical College, were held in the auditorium of the college, November 16. Addresses were made by Dr. Jacob Gould Shurman, Elihu Root, Dr. W. Gilman Thompson and Dr. Edward L. Keyes.

Representatives of Red Cross Meet.—A meeting of representatives of the Southern Section of New York met in this city recently for the purpose of stimulating the war work and adding to the efficiency of the Atlantic Division. Dr. Thomas D. McRossie, Brooklyn, member of the Red Cross Commission to France, addressed the representatives. He laid special stress on the necessity of keeping up the work of making surgical dressings.

Personal.—Dr. J. Ramsay Hunt has been appointed associate in neurology and psychiatry on the staff of the New York City Children's Hospital and School, Randall's Island.——Dr. William M. Leszynsky has been appointed neurologist to the Manhattan State Hospital.——Drs. Morris Steinberg and Leo Lieberman, members of the house staff of St. Mary's Hospital, Jamaica, were injured in a collision between the ambulance in which they were riding and an automobile. November 9.——Dr. Thomas F. Reilly has been appointed to the chair of medicine in the Fordham University School of Medicine.

Laboratory Course for War Service.—Through the united efforts of the War Service Committee of the Medical Women's National Association, New York University, and the bureau of laboratories of the department of health, a course in medical laboratory work is offered to applicants who have the preliminary training in science and scientific methods obtained in a four years' college course or the equivalent. The object is to fit workers for war service in medical laboratories in this country and in Europe. The course will extend over a period of three months, requiring six hours' work each day. Application may be made to Dr. Anna W. Williams, Research Laboratory, foot of East Sixteenth Street. The fee is $75.

NORTH CAROLINA

Personal.—Dr. Charles T. Nesbitt, Wilmington, has been appointed health commissioner of Akron, Ohio.——Dr. William K. Reid has resigned as superintendent of the health department of Charlotte.

State Quarantine Law Enforced.—Seventy-seven counties of North Carolina have at present put into operation the new state quarantine law. Twenty-three counties have so far made no progress in this regard.

Orthopedic Hospital for Gastonia.—Mr. R. B. Babington, Gastonia, has donated 20½ acres of land on which is to be established an orthopedic hospital, the charter for which has already been granted by the state.

PENNSYLVANIA

Physicians Needed.—The Pennsylvania State Committee of the Council of National Defense, Medical Section, announces that the committee has applications at this time pending to fill the following positions in hospitals and institutions in or near Philadelphia: Medical: Superintendent of hospital, salary $1,500 per annum; two clinical assistantships, psychopathic, salary $600 per annum; assistant bacteriologist, salary $1,000 per annum; anesthetizer, salary $30 per month. Surgical: Assistant surgeon, salary $3,000 per annum; visiting surgeon, dispensary, no salary; visiting ophthalmologist, no salary; visiting laryngologist, no salary. Internships, general internships, resident physicians in special hospitals, etc. Applicants for these positions should communicate with the secretary, Charles Scott Miller, M.D., giving school and year of graduation, qualifications, credentials, etc., and salary desired.

Philadelphia

Addresses Before Medical Societies.—Dr. Rosalie Slaughter-Morton, New York, chairman of the Woman's Committee of the Council for National Defense, delivered an address on "War Service for Women Physicians" at the meeting of the Medical Society of the Woman's Hospital, November 20.——Dr. Arthur S. Kendall, Sydney, N. S., delivered the Gross Lecture, "Recent Developments in Intestinal Bacteriology," at the meeting of the Pathological Society, November 22.

Philadelphia County Medical Society.—At the meeting of the Philadelphia County Medical Society, to be held November 28, Major David Silver, Pittsburgh, assistant director of the Division of Military Orthopedic Surgery, will discuss the surgical aspects of the function of orthopedic surgery in the war, and will detail what has been accomplished and what his branch intends to do for the service. The civic aspects will be discussed by Major Henry R. Hayes of the Sanitary Corps. The discussion will be opened by Dr. Gwilym G. Davis, professor of orthopedic surgery in the University of Pennsylvania, and a member of the Orthopedic Advisory Council.

Optometrists to Be Ousted.—About 120 fake "eye-doctors" are to be thrown out of business shortly in this city. The unscrupulous individuals who have not hesitated to advertise themselves as optometrists, when they had no right whatever to that title, and who have ruined the eyes of thousands of their patients by prescribing glasses or giving treatment which was harmful in the extreme, will be ousted within a few months, if the plans of the State Board of Optometrical Education, Examination and Licensure are realized. There are about 2,000 practicing optometrists in Pennsylvania, 800 of whom have offices in this city. The state board today began examining the 800 local optometrists, 300 taking the prescribed examinations in the Central High School. Two more days will be required to examine the others. The examinations, which cover five subjects, are the first to be held under the new law to license men engaged in the practice of optometry, and are designed to eliminate the charlatan practitioner.

WISCONSIN

Tells of War Surgery.—At the meeting of the Beloit Six O'clock Club, November 14, Major Charles McDonald spoke on war surgery and Red Cross work in Austria-Hungary, where he has spent the last three years.

Anthrax in Milwaukee.—A second case of anthrax has been discovered in Milwaukee in the same tannery where the first victim was found. The infection is not so severe as in the first case, and the patient is under treatment in the South View Isolation Hospital.

All Physicians Medical Examiners.—The medical examinership for the Wisconsin State Tuberculosis Sanatorium has been extended to include all regularly licensed physicians who are citizens of Wisconsin. The former list will be used in cases in which the applicant for the sanatorium does not give the name of his family physician.

Hospital Items.—The Franson Hospital, Augusta, has been sold to Mr. Robert Reider, Humbird.——The fund-raising campaign for the Ashland General Hospital began, November 12. A tentative site for the tuberculosis sanatorium for the northern part of the state has been selected on the Bayfield County side of Chequamegon Bay. The last legislature passed a bill appropriating $75,000 for this project.

Personal.—Dr. Matthew N. Federspiel, Milwaukee, was elected president, and Dr. Henry McCabe, Milwaukee, vice president of the Marquette University Alumni Association.——Dr. Thaddeus D. Smith, Neenah, who was recently wounded in a German air raid in a base hospital behind the trench line, is under treatment in a hospital in England.——Dr. Angus E. MacMillan, Stevens Point, was operated on in Chicago for removal of the gallbladder, November 1, and is reported to be doing well.

New Officers.—At the annual meeting of the West Wisconsin District Medical Society, held in Eau Claire, Dr. Fred S. Cook, Eau Claire, was elected president; Dr. Nels Werner, Barron, vice president, and Dr. Eugene E. Tupper, Eau Claire, secretary.——At the annual meeting of the Wisconsin Anti-Tuberculosis Association, held in Milwaukee, November 9, the following officers were elected: president, Dr. Timothy L. Harrington, Milwaukee; vice presidents, Drs. John W. Coon, Stevens Point, and Charles D. Boyd, Kaukauna; recording secretary, Dr. J. Gurney Taylor, Milwaukee, and treasurer, Mr. J. H. Kopmeier.

CANADA

Hospital News.—Finance Commissioner Bradshaw, Toronto, and Medical Officer of Health Dr. Charles J. C. O. Hastings have made a joint report to the board of control that the boards of the several hospitals in that city be coordinated or else governed by a commission, with a general manager. Duplication of certain expenditures is costing the city thousands of dollars. The city contributes $900,000 annually to the hospitals and is not in a position to see how the money is being expended. Recently the hospitals have requested grants from the city treasury as follows: General, $50,000; Western, $20,000; Toronto Free Hospital for Consumptives, $40,000; Hospital for Sick Children, $38,000, and Women's College Hospital, $33,000. The two officials recommended that the grant to the General Hospital be conditioned on the government of Ontario making a grant of $25,000; that the grant to the Western be $11,182; that the Hospital for Consumptives get the full amount of $40,000 asked for; that the full amount asked be paid the Hospital for Sick Children, and that the grant to the Woman's College Hospital be deferred until after the war, as the money was to be used for the erection of a new wing.

Personal.—Dr. Charles Sheard, sometime medical officer of health, Toronto, and formerly professor of preventive medicine in the University of Toronto, has been chosen to contest South Toronto constituency in the pending federal elections.——Dr. S. Hawden, who has been in charge of the Dominion government laboratory, Agassiz, B. C., has been appointed dominion pathologist in succession to Dr. Charles P. Higgins, Vancouver, who has resigned to enter business.——Dr. Allen M. Baines, Toronto, addressed the graduating class of nurses at the Hospital for Sick Children, November 16. He emphasized the importance of nurses being good readers, maintaining that elocution should be part of their course, inasmuch as reading is a source of very great pleasure to a patient in a convalescent stage.——Lieut.-Col. Clarence L. Starr, Toronto, who has been doing orthopedic work in England for a year, has returned to Toronto. In a short address to the nurses of the Hospital for Sick Children he spoke of how splendidly the nurses graduated from that hospital had upheld the honor of the hospital in France and England.——Major Harley Smith, home for a short furlough in Toronto, will shortly return to England and will probably be attached to a hospital in France, as Major Smith speaks French and Italian fluently.——Lieut.-Col. Charles H. Gilmour, Toronto, is now surgeon-in-chief, Ontario Military Hospital, Orpington, England, Lieut.-Col. William J. O. Malloch, Toronto, having been transferred to the hospital at Basingstoke.——Capt. J. Harvey Todd, Toronto, who has been overseas nearly three years, has returned to Quebec, and is now with Militia Headquarters as A. D. D. A. M. S., fifth district. His services abroad have been recognized by promotion to the rank of major.——Dr.

George C. Livingstone, who for the past year has been assistant superintendent of the Toronto General Hospital, has severed his connection with that hospital, and has offered his services for overseas. For a time he will be attached to the C. A. M. C., Exhibition Camp, Toronto.

GENERAL

Hospital Car.—A hospital car made at the suggestion of Dr. David O. Edson, New York, to transport sick and injured soldiers from the cantonments to base hospitals has just been completed by the mechanical department of the Erie Railroad. This car will accommodate twenty-eight patients, and has on each side seven two-tier berths.

Southern Tuberculosis Fighters Meet.—At the annual meeting of the Southern Tuberculosis Conference, held at the Pine Breeze Sanatorium, Chattanooga, Tenn., the following officers were elected: president, John Stagmier, Chattanooga, Tenn.; vice president, Boulton Smith, Memphis; members of the executive committee, Drs. Augustus C. Shipp, Little Rock, Ark.; William H. Cox, Jacksonville, Fla.; Henry Boswell, Jr., Magee, Miss.; Lewis B. McBrayer, Sanatorium, N. C.; William N. Lackey, Gallatin, Tenn., and directors, Drs. David L. Flanary, Dyersburg, Tenn., and Henry P. Coile, Knoxville, Tenn.

Insurance Company Offers Vital Statistics.—The statistical bureau of the Metropolitan Life Insurance Company invites physicians, public health and social workers to make use of its collection of mortality statistics. These statistics present the principal causes of death among white and colored wage earners in the United States and Canada. The material covers over 10,000,000 individuals for each of the six years, 1911 to 1916. Death rates are available for each race, by sex and by age period. All inquiries should be addressed to Statistical Bureau, Metropolitan Life Insurance Company, 1 Madison Avenue, New York City.

FOREIGN

Training School for Women Workers.—Through the efforts of Mr. Edouard Herriot, mayor of Lyon, France, a professional training school for the higher technical development of women has been established and opened its first session, Oct. 1, 1917. The curriculum of the school will include a commercial course and a technical course of two years each. The minimum age limit for entrance has been fixed at 16 years, and an examination for admission will be required. An elaborate course of study in commercial and technical subjects has been provided.

In the munition plants of the city, in May, 1917, out of a total of 12,000 workers, more than 50 per cent. were women. Efforts are constantly being made to improve the surroundings of the women and to make the work congenial. Hygienic conditions are being improved and rest rooms provided. Extra holidays will be granted the women, and expectant mothers are made an allowance of 4.50 francs per day, for a period of forty days, making a total allowance of about $36. If both father and mother are employed in any plant, the children are cared for during working hours by especially organized asylums. The women workers are divided into two squads, one working from 6:15 a. m. to 2:15 p. m., with an interruption of 45 minutes for luncheon, the second squad working from 2:30 to 9:30 p. m., with the same interval for the evening meal.

LONDON LETTER

London, Oct. 30, 1917.

The War

ARRIVAL OF SECOND AMERICAN ORTHOPEDIC CONTINGENT

The second American orthopedic contingent, composed of forty-two medical officers under the direction of Major Goldthwaite, has arrived. All of the officers as well as three of engineering experience commissioned in the sanitary corps are to take charge of the development of curative workshops in the American orthopedic hospitals in France. There are also twelve orthopedic nurses as a nucleus around which a nursing staff is to be developed. All the medical staff except the director are to be distributed temporarily through the British orthopedic centers. Arrangements have been made by which these centers can be used for training Americans in orthopedic work with the idea of providing relief for the large number of medical officers that will be required for this special work. When these men are needed for service in the American hospitals in France, another group will be sent from home to take their place in the British hospitals. The rotation will be continued until the American hospitals are fully staffed. Major Goldthwaite is going on to American headquarters in France to organize the orthopedic hospital with the American Army.

FOOD CONTROL

All the principal foodstuffs have been brought under control, that is to say, bread, flour, meat, potatoes, sugar, tea, milk, butter, cheese and bacon. Control has further been extended to certain subsidiary foods, such as jam, oatmeal, dried peas and beans, chocolate and sweetmeats, and also to feeding stuffs for livestock. Prices have been or are being fixed at every stage of production and distribution of controlled commodities, from the stockyard or barn to the shop counter. The speculative middleman has been eliminated, and the charges that may be made by the necessary middleman and the retailer are being defined and regulated by the fixing of prices or profits. The prices to be paid for live cattle have been fixed on a descending scale, so as to show an ultimate reduction of from 20 to 25 per cent. Butchers' profits are limited to 5 cents per pound, or 20 per cent. on their fortnightly turnover, whichever is less. These measures should ultimately secure an average reduction in the retail price of meat equivalent to the reduction in the purchase price of cattle. As compared with last July, the wholesale price of British beef has fallen 17 per cent., and the wholesale price of mutton, 19 per cent. This fall is already reflected in retail prices, but some time must elapse before its influence can be fully ascertained. As a result, a guaranty to growers of $30 a ton on the acreage under potatoes has been considerably increased, and there is an abundant crop. The retail price of these is controlled, and as a rule will be about 2 cents per pound. Complaints have been made in regard to the distribution of sugar rather than to its price. A new scheme of sugar distribution is designed to secure that such supplies as are available shall be distributed without suspicion of favor. It safeguards the position of the householder, whether he be rich or poor. Sir Arthur Yapp, director of food economy, advocates simpler meals of two-courses only at midday or evening dinner, at any rate on three days of the week, and also extended use of communal kitchens. He suggests no butter or bread for midday or evening dinner, but extra vegetables in their place, no cream except for invalids and children; no tea except for tea meal, no open sugar bowl, and no ham or bacon except for breakfast. There must be better preparation of food by expert cooking. To obtain every possible assistance in the new campaign he is relying largely on the churches, but is hoping also for the help of cooperative societies and the friendly society organizations. Then he is bringing into effect an organization to be known as the League of National Safety, in which he aims first at enrolling 10,000 members, to be followed almost immediately by 100,000 and later by a million. Speaking of the difficulties of rationing, he said that anything of that kind might be good enough for Germany, but it was not quite English. He had unbounded faith that English people, when they realized the needs of the situation, would respond loyally and would render unnecessary the setting up of machinery for compulsory rationing.

CARE OF WOMEN MUNITION WORKERS

Various precautions are being taken by the Ministry of Munitions to maintain health among the women munition workers who are now employed by thousands throughout the country. The hours of labor, though necessarily long, are being steadily reduced, and Sunday labor is being abolished, except when the work is bound to be continuous. In no case may a woman work longer than sixty hours a week, unless a special permit be granted to the employer by the Home Office, after consultation with the Ministry of Munitions. Without such permission, the maximum hours of a woman worker on a twelve hours' shift are ten and a half a day, with seven hours on Saturday, a minimum daily interval of one hour for dinner and half an hour for tea being enforced. The welfare of women in engineering shops is being safeguarded by the Health of Munition Workers' Committee and the Welfare Department of the Ministry. Canteens, cloak rooms and rest rooms are being increasingly introduced into the factories. Seats for the workers, labor-saving applicances and safety equipment in connection with the machinery are being more extensively employed. Welfare supervision in the factory has become a normal feature, and a complete system of housing munition workers in bungalows, hostels or colonies has sprung up.

Sir William Herschel

Sir William Herschel, author of the finger-print identity system, has died. Born in 1833, he was a grandson of the famous astronomer, the discoverer of Uranus, and a son of the no less eminent astronomer and chemist, Sir John Frederick Herschel. He entered the Indian Civil Service in 1859, after the suppression of the mutiny. He applied the first tests of the practicability of using finger-print impressions as means of identification. His object was to circumvent the ersonation then prevalent in the Bengal courts of justice and which, in the general state of illiteracy, could seldom be checked by a comparison of signatures. As early as 1823, Purkenje, the physiologist, had drawn attention to the subject of finger impressions; but it was Herschel, more than a generation later, who proved by practical application their individuality and their persistence for a term of at least fifteen years. His recommendation of their general adoption for civil purposes throughout India was not followed, and the practice lapsed after his departure for other spheres. But his enthusiasm for the system did not abate; and though he evolved it amid "depressing difficulties," he had the satisfaction in later years of seeing his methods applied in all parts of the world on a larger scale than he had ever anticipated. In 1897, nearly twenty years after he had left the country, the government of India accepted the recommendation of an expert committee that finger-prints should be adopted as a means of identification both for civil and for criminal purposes as being in every way superior to the anthropometric method.

PARIS LETTER

Paris, Oct. 25, 1917.

Death of Professor Dastre

French science has sustained a great loss in the person of Professor Dastre, who died as the result of an automobile accident, at the age of 73. He was one of the most noted French physiologists, one who followed in the footsteps of Claude Bernard and Paul Bert, whose student and collaborator he was. [The cable despatch stated that he had been run over by an automobile at the same corner where Professor Curie met with a similar fatal accident a few years ago.]

Jules Albert Franck Dastre was born in Paris, Nov. 7, 1844. He was a student at the Superior Normal School, then a Fellow of physical science, licentiate of mathematical science, doctor of natural science, and then he entered on the study of medicine, presenting his doctorate thesis on "Diabetic Asphyxia" in 1879. From 1872 to 1876 he was laboratory assistant of Claude Bernard at the College of France, and of Paul Bert at the Museum of Natural History. He was appointed supplementary professor of physiology at the Faculté des Sciences in 1876, and in 1887 he was made full professor. In 1904, he was made a member of the Académie des sciences, and in 1908 of the Académie de médecine.

DASTRE'S WORK

Dastre's researches in physiology were conducted on various phases of this science. Particularly worthy of note are his researches on the composition of birds' eggs and their value as nutriment to the embryo; on the storing up of fats, their digestion, their origin and their utilization in the organism; the rôle played by the starches and various sugars in nutrition. He thus cleared away many obscurities in the phenomena of nutrition, specifying the rôle played by fat bodies in these processes and the production of fat bodies by various digestive glands. In the domain of the nervous system he demonstrated the general existence, in all the organs, of inhibiting nerves which oppose the exciting action of other nerves. His studies on the physiology of the heart added to our knowledge of the causes of the rhythm of the heart beat, and his researches on the liver threw new light on the multiplicity of functions of that organ, notably in the production of fats and in the storing up of the iron necessary for the formation of red blood cells. Some of the more important of his works are the following: "Experimental Researches on the Vasomotor Nervous System" (1884), in collaboration with J. P. Morat; "Anesthetics: Physiology and Surgical Application" (1890); "Researches on the Coloring Matter of the Liver and of the Bile and on Liver Iron" (1898), in collaboration with N. Floresco; "Life and Death" (1903). He also was a collaborator on the staff of the French *Scientific Review*, *Philosophic Review* and the *Review of Two Worlds.*

The War

TREATMENT OF WOUNDS OF THE SOFT PARTS

At a recent session of the Société de chirurgie de Paris, Dr. P. Duval, professor agrégé at the Faculté de médecine de Paris and surgeon of the hospitals, presented a very interesting communication on the results he has obtained in the army, thanks to a new special organization, created at his instigation, for the distribution, evacuation and treatment of soldiers sustaining wounds of the soft parts, the most numerous of all. Treated under the best conditions they heal quickly and well; treated under less favorable conditions, they may be followed by the worst complications. The fundamental principle, which, apparently, is accepted by every one today, is that all wounds of the soft parts should be treated within the period of the first twelve hours by opening up the wound widely and removing all foreign bodies. The surgical wound left can then be treated either by immediate suture or by secondary suture done after progressive sterilization. The immediate suture is beyond question the method of choice, but it can be carried out only under fixed conditions: experienced surgeons, perfect equipment, and every possibility of a hospital residence of at least fifteen days with the operating surgeon. For the last reason, primary suture may be made the rule during quiescent periods, but would be the exception during periods of activity when the majority of the wounds of the soft parts can get only secondary suture.

DEFERRED PRIMARY SUTURE

In order to remedy this state of affairs, as far as possible, Duval has adopted the following organization: Behind the evacuating centers, but as near to them as the commandant will permit, large surgical formations, with numerous operating rooms, are established, to be used solely for the treatment of wounds of the soft parts. Two such formations, accommodating many hundreds of wounded, are designated to receive soldiers who are to be treated by primary suture. The other surgical formations are to take care of such wounded as have been sent from the evacuation hospital, but they must send them on to the rear as quickly as possible, in from eight to twelve hours after the primary treatment. Instructions are given to these surgical groups to treat these wounds as follows: Lay them wide open, excising all dead tissue, removing foreign bodies, and then applying simple aseptic dressings after ether lavage. The evacuation of the wounded so treated is finally made to a designated center in the rear where, at the proper time, secondary suture is performed.

RESULTS

By reason of the perfect teamwork done by the surgical formations at the front and those farther inland, the most remarkable results have been obtained, as is shown by the following data: About one third of these wounded were sent to the two centers provided for treatment by immediate suture. Of this number, 67.5 per cent. were treated by primary suture, with only 4 per cent. of failures. Not a single grave accident was noted. Two thirds of the wounded were operated on in the special formations reserved for the treatment of these wounds in the manner outlined above, that is, without suture. Not a single accident was noted. These patients were sent to the base hospitals in less than twelve hours after operation and in less than twenty-four hours after they were wounded. Of those wounded who were operated on in the front line and then evacuated rapidly to the base hospitals, and had their wounds sutured secondarily, 81 per cent. were so treated within eleven days after having been wounded and operated on. No untoward results were noted among this class; no deaths, no gas gangrene, no tetanus, only one case of septic complication—an amputation for arthritis of the knee with purulent discharge, which developed as a late complication of a wound of the foot. Fully 84 per cent. of the wounded evacuated were sutured and cured completely within five weeks after they were wounded.

One sees that it is hardly necessary to regret that immediate primary suture, which is the method of choice, cannot be applied to all the wounded during an offensive movement. The retarded primary suture, that is, suture done after several days, yields equally good results as immediate primary suture. The systematic progressive sterilization of surgical wounds is therefore a method which is useless in about two thirds of the cases, and the secondary suture should give way to deferred primary suture. The latter has further the following advantages: simplification of the treatment, a notable reduction in the length of the treatment, and lastly—

to which too much attention cannot be drawn—a more complete cure. The primary delayed suture, when made in healthy tissues, restores these tissues to almost perfect function. The cicatrix is soft, flexible and nonadherent.

Motherhood Welfare Work in Factories

The manufacturers who employ, for purposes of national defense, a large number of female workers are taking steps to insure the protection of motherhood. They are creating many associations formed for the purpose of providing various measures needed for the protection of these women. One of these associations, the Maternité ouvrière de Levallois-Perret et de Neuilly, has built, on a large piece of ground in close proximity to several large factories, where hundreds of women are employed, a model motherhood welfare institution, which was opened by M. Loucheur, minister of munitions, MM. Albert Thomas and Paul Strauss. In this institution are provided all of the hygienic and comfort measures demanded by the Committee on Women's Work appointed by the minister of munitions. On the occasion of this dedication, M. Loucheur declared himself to be in perfect accord with his predecessor, M. Albert Thomas, in regard to the welfare work among workers, especially the protection of the health of female workers. He has given freely of his counsel for the development and perpetuity of this effort, as outlined by the originators of this movement.

Discontinuation of the Meatless Days

The régime of the meatless days is coming to an end. The results of the inquiry made by the minister of agriculture as to the supply of grazing live stock (*cheptel*) on July 1, 1917, which was published in the *Journal Officiel*, permitted of taking count up to a certain point of the consequences resulting from the institution of meatless days. The total figures for each kind of stock are: horses, 2,282,560 head; cattle, 12,443,304 head; sheep, 10,586,594 head. Comparing these figures with those given Dec. 31, 1916, it will be noted that since that time the live stock has been augmented by about 36,000 head of horses and about 100,000 head of cattle, although the number of sheep has diminished about 250,000 head and pigs about 160,000 head. It was mainly an insufficient supply of potatoes which was responsible for the reduction in the raising of pigs, and therefore the steady increase in price. This year, however, the potato harvest has been most abundant, and there is reason therefore to count on larger numbers of hogs being raised.

Marriages

Lieut. Ambler Baxter Patton, M. R. C., U. S. Army, Great Falls, Mont., to Miss Ruth Wells, of Athens, Ga., at Charlotte, N. C., October 21.

Charles G. Morgan, M.D., to Miss Garnett German, both of Moundsville, W. Va., at Fairmont, W. Va., October 4.

Guy H. Wilson, M.D., Bicknell, Ind., to Miss Maude Ecker of Collinsville, Ill., at Bicknell, November 1.

Julius Mordecai Rosenthal, M.D., to Miss Renée Prisament, both of Monticello, N. Y., October 6.

Frank Walter Hannum, M.D., Muskegon, Mich., to Miss Lynne Carr of Rhinelander, Wis., October 17.

Irving Hotchkiss Pardee, M.D., to Miss Margaret E. Trevor, both of New York City, October 27.

Daniel T. Sullivan, M.D., Mansfield, Mass., to Miss Helen M. Leonard of Brockton, Mass., October 30.

Eugene Emmett Birmingham, M.D., to Miss Theresa Celia Kelly, both of Chicago, October 24.

Lemuel Harris Kerr, M.D., Louisville, Ky., to Miss Marie Chenoweth, at Cincinnati, November 1.

Gundmund J. Gislason, M.D., to Miss Esther Thorgrimsen, both of Grand Forks, N. D., October 24.

Sterling Price Bond, M.D., Little Rock, Ark., to Miss Mary Kitchens of Denver, October 24.

John Carl Wahl, M.D., Scranton, Pa., to Miss Ethel Somers of Philadelphia, October 25.

Stanley Brady, M.D., to Mrs. Lillian London, both of New York City, October 24.

George Arthur Bemis, M.D., to Miss Ruth Lewis, both of Garner, Iowa, October 31.

Deaths

Charles Henry Stanley Davis, M.D., Meriden, Conn.; New York University, New York, 1866; aged 77; clerk of the Meriden City Medical Association since 1870; representative to the state legislature in 1873, and 1885-1886; mayor of Meriden in 1887-1888, and city treasurer, 1898-1899; physician to the State School for Boys from 1895 to 1900; physician to the Curtis Home for Old Ladies and Orphans from 1886 to 1906; trustee, secretary and treasurer of the State School for Boys for four years, and president of the Meriden Board of Education for six years; well known as an archeologist; editor of *Biblia,* a journal of oriental archeology, since 1887; and associate editor of the *American Antiquarian and Oriental Journal,* since 1906; author of many books on science and archeology; died in the Middletown State Hospital, November 7.

Margaret Abigail Cleaves, M.D., Yonkers, N. Y.; State University of Iowa, Iowa City, 1873; aged 69; a Fellow of the American Medical Association; formerly assistant physician at the State Hospital for the Insane, Mount Pleasant, Iowa; and physician in charge of the female department of the State Hospital for the Insane, Harrisburg, Pa.; founder and director of the New York Electro-Therapeutic Clinic Laboratory and Dispensary; author of "Light Energy: Its Physics, Physiological Action and Therapeutic Application"; died in a hospital in Mobile, Ala., November 14.

W. Godfrey Hunter, M.D., Louisville, Ky.; Miami Medical College, Cincinnati, 1871; aged 76; a surgeon in the Federal service throughout the Civil War; a member of Congress from the third and eleventh districts of Pennsylvania; United States minister to Guatemala during President McKinley's administration; died in the Deaconess Hospital, Louisville, November 2, from hemorrhage of the kidney.

Frederick Boty Elliott, M.D., Pittsburgh; West Pennsylvania Medical College, Pittsburgh, 1896; aged 45; formerly a Fellow of the American Medical Association; local surgeon to the Pittsburgh and Lake Erie and Baltimore and Ohio railroads; at one time a member of the local school board; a member of the staff of the Allegheny General Hospital; died at his home, November 4, from heart disease.

Lewis Arthur Welles Alleman, M.D., Geneva, N. Y.; Jefferson Medical College, 1886; aged 55; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of New York; formerly professor of diseases of the eye in Long Island College Hospital, Brooklyn; died at his home, November 3.

Jacob Maurice Morin, M.D., Brockton, Mass.; Long Island College Hospital, 1899; aged 48; a Fellow of the American Medical Association, and once president of the Brockton Medical Association; a member of the surgical staff of the Brockton Hospital; died at his home, September 12, from chronic interstitial nephritis.

Thomas Maher Reade, M.D., Springfield, Ohio; Washington University, St. Louis, 1871; aged 67; a member of the Ohio State Medical Association; and for a number of years a member of the board of trustees of the Springfield City Hospital; died in that institution, October 31, from cerebral hemorrhage.

Estella Horton Houghton, M.D., Chicago; Northwestern University Woman's Medical School, Chicago, 1899; aged 54; formerly a member of the Illinois State Medical Society; a specialist on diseases of the eye, ear, nose and throat; died in Wesley Hospital, Chicago, October 24, from cerebral embolism.

William Shannon Pollard, M.D., Evansville, Ind.; Miami Medical College, Cincinnati, 1871; aged 79; a veteran of the Civil War; formerly a member of the Indiana State Medical Association, and a member of the staff of Deaconess Hospital, Evansville; died in a hospital in that city, November 1.

Harry A. Nickerson, M.D., Camden, Del.; National Normal University, Lebanon, Ohio, 1890; Medico-Chirurgical College of Philadelphia, 1899; aged 50; formerly a Fellow of the American Medical Association; a member of the Delaware State Medical Society; died at his home, November 4.

Marshall Curtis Munn, M.D., Sycamore, Ill.; College of Medicine and Surgery, Physio-Medical, Chicago, 1893; Hospital College of Medicine, Louisville, Ky., 1895; aged 58; a member of the Illinois State Medical Society; died at his home, October 15, from tuberculosis of the larynx.

Acting Asst.-Surg. Ward Boleyn MacCaffry, U. S. P. H. S., Fortress Monroe, Va.; Medico-Chirurgical College of Philadelphia, 1906; aged 42; for many years in charge of the Cape Charles Quarantine Station; died in Philadelphia, November 4, from a general nervous breakdown.

Emmet Lincoln Smith, M.D., Bellefontaine, Ohio; Chicago Homeopathic Medical College, 1888; College of Physicians and Surgeons, Chicago, 1893; aged 52; for many years a practitioner of Zanesfield, Ohio; died at his home, November 3, from cerebral hemorrhage.

T. R. League, M.D., Greenville, S. C.; Medical College of Georgia, Augusta, 1868; aged 71; formerly a member of the South Carolina Medical Association; at one time a member of the house of representatives from Greenville County; died at his home, October 31.

Ralph E. Gustin, M.D., Detroit; Hahnemann Medical College, Chicago, 1881; aged 67; who was recently sentenced to imprisonment for one to fifteen years for performing an illegal operation; died in the hospital of the state penitentiary, Jackson, November 7.

Lieut. John Charles Murphy, M. R. C., U. S. Army, Hinesburg, Vt.; University of Vermont, Burlington, 1905; aged 35; formerly a member of the Vermont State Medical Society; died in Fort Ethan Allen, Vt., July 19, from purpura hemorrhagica.

Fielding Lewis Davis, M.D., Evansville, Ind.; Homeopathic Hospital College, Cleveland, 1870; aged 86; formerly a Fellow of the American Medical Association, and said to have been the oldest practitioner of Evansville; died at his home, November 1.

Homer Abraham Borin, M.D., Haw Knob, Tenn.; Lincoln Memorial University, Knoxville, Tenn., 1914; aged 33; physician for the Tellico River Lumber Company; was shot and instantly killed near Tellico Plains, November 4, by a young farmer.

George Murphy, M.D., Fort Wayne, Ind.; University of Wooster, Cleveland, 1870; aged 79; a veteran of the Civil War; formerly lecturer on chemistry and toxicology in the Fort Wayne Medical College; died at his home, November 3.

Basil M. Woolley, M.D., Atlanta, Ga.; Atlanta, Ga., Medical College, 1882; aged 82; a Confederate veteran; who was struck by an automobile, October 26; died from his injuries in the Davis-Fischer Sanitarium, Atlanta, November 28.

Arthur Martin Clapp, M.D., Springfield, Mass.; Harvard Medical School, 1902; aged 41; a Fellow of the American Medical Association; while testing a high-powered electrical coil in his office, October 31, was electrocuted.

William H. Webb, Adams, Ind. (license, Indiana, 1897); aged 91; a practitioner since 1866; and for fifty-six years of that time a resident of Adams; died at the home of his son at that place, November 8, from senile debility.

Mary J. Green, M.D., Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1878; aged 76; a member of the Medical Society of the State of Pennsylvania; died at her home in West Philadelphia, November 3.

Alvin H. Keller, M.D., Sioux Falls, S. D.; University of Nebraska, Lincoln, 1883; aged 64; a graduate of the Philadelphia College of Pharmacy, in 1886; died at his home, November 13, from chronic nephritis.

Jasper N. Tabler, M.D., Atlanta, Ga.; Medical College of Virginia, Richmond, 1869; aged 75; formerly a Fellow of the American Medical Association; died at the home of his daughter in Philadelphia, October 29.

Harry Lorenzo Chapin, M.D., Cleveland; Western Reserve University, Cleveland, 1893; was attacked by an unknown assailant in a hotel in Cleveland, November 8, and died shortly afterward from his injuries.

Carl Fulda, M.D., Brooklyn, N. Y.; College of Physicians and Surgeons in the City of New York, 1901; aged 38; attending surgeon to the German Hospital, Brooklyn, N. Y.; died at Pepperell, Mass., November 8.

James Taylor, M.D., East Liverpool, Ohio; Medico-Chirurgical College of Philadelphia, 1894; aged 46; first city clerk of Johnstown, Pa.; died at his home, November 6, from cerebral hemorrhage.

George W. N. Custis, M.D., Washington, D. C.; George Washington University, Washington, D. C., 1887; Hahnemann Medical College, Philadelphia, 1888; aged 87; died at his home, October 29.

Herschel J. Zeis, M.D., Kenton, Ohio; Starling Medical College, Columbus, Ohio, 1905; aged 36; a member of the Ohio State Medical Association; died at his home, October 31, from diabetes.

William Henry Spilman, M.D., Schoolfield, Ky.; Miami Medical College, Cincinnati, 1869; aged 77; died in the Campbell County Infirmary, Newport, Ky., October 8, from arteriosclerosis.

Charles Edward Stuart Taylor, M.D., Guthrie, Okla.; University of Toronto, Ont., 1874; aged 65; for nearly a quarter of a century a druggist of Guthrie; died at his home, November 1.

John Francis Mumford, M.D., Newtown, Conn.; College of Physicians and Surgeons, Baltimore, 1913; aged 26; died at the home of his parents in Raynham Center, Mass., about October 10.

Edward L. Stahl, M.D., Chicago; Rush Medical College, 1883; aged 64; also a graduate of the Chicago College of Pharmacy; died at his home, November 12, from cerebral hemorrhage.

Alexander T. Stevenson, M.D., Bay City, Mich.; Miami Medical College, Cincinnati, 1891; aged 56; died in Ann Arbor, Mich., July 13, from chronic interstitial nephritis.

Sloan F. Hall, M.D., Orlando, Fla.; University of Nashville, Tenn.; aged 84; for many years a practitioner of Nashville; died at his home, August 26, from uremia.

Oliver R. Diehl, M.D., Bryn Athyn, Pa.; Harvard Medical School, 1915; aged 27; died at his home, July 14, from endocarditis following a streptococcus infection.

Robert S. Stahle, M.D., New Market, Pa.; University of Maryland, Baltimore, 1882; aged 59; died at his home, November 2, from disease of the liver.

John H. Wade, Lesley, Ark. (license, Eclectic State Medical Board of Arkansas, 1903); aged 71; a Confederate veteran; died at his home, October 29.

George Wilbur Tucker, M.D., Wilmington, Ohio; Miami Medical College, Cincinnati, 1879; aged 66; died at his home, October 31, from arteriosclerosis.

John Wesley Story, Jr., M.D., Baker, Mont.; University of Louisville, Ky., 1912; aged 30; died in Miles City, Mont., November 5, from pneumonia.

Samuel H. Riley, M.D., Hudson, Mich.; Eclectic Medical Institute, Cincinnati, 1868; aged 72; died at his home, November 1, from pneumonia.

Thomas S. Motter, Dayton, Ind. (license, Indiana, 1897); aged 80; a surgeon of volunteers during the Civil War; died at his home, November 13.

Martha A. Stevens, M.D., Downers Grove, Ill.; New York Hygeio-Therapeutic College, New York, 1861; aged 82; died at her home, November 2.

Jack R. Sharman, M.D., Meridian, Miss.; Louisville, Ky., Medical College, 1876; aged 66; died at his home, September 4, from arteriosclerosis.

Edward H. Jones, M.D., Arlington, Texas; Tulane University, New Orleans, 1882; aged 61; died at his home, July 9, from bronchiectasis.

Wilson J. Orr, M.D., Springdale, Pa.; Jefferson Medical College, 1873; aged 85; died at his home, November 4, from senile debility.

Herman Meyer, Chicago (license, years of practice, Illinois, 1878); aged 69; died at his home, November 3, from strangulated hernia.

Benjamin F. Felix, M.D., Cerulean, Ky.; Eclectic Medical Institute, Cincinnati, 1886; aged 72; died at his home, October 25.

Edgar DeWitt Hurtt, M.D., Piscataway, Md.; University of Maryland, Baltimore, 1854; aged 87; died at his home, October 28.

Dudley W. Welch, M.D., Parkersburg, W. Va.; Medical College of Ohio, Cincinnati, 1896; aged 45; died at his home, October 30.

James Ward Vance, M.D., Madison, Wis.; Pulte Medical College, Cincinnati, 1881; aged 85; died at his home, October 31.

John H. Agee, Lafollette, Tenn. (license, Tennessee, 1889); aged 67; died at his home, August 17, from cerebral hemorrhage.

Martha J. Creighton, M.D., Chicago; Hahnemann Medical College, Chicago, 1884; aged 84; died at her home, November 14.

Adna Balche Jones, M.D., Wakeeney, Kan.; Rush Medical College, 1882; aged 60; died in Kansas City, Mo., October 27.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

NOSTRUMS IN RETROSPECT

A Review of Worthless or Unscientific Proprietary Mixtures Previously Criticized

[FOREWORD.—It is over twelve years since the Council on Pharmacy and Chemistry of the American Medical Association was created. Since then there have been but few issues of THE JOURNAL that have not called the attention of the medical profession to the debasing influence on scientific medicine of unscientific or worthless proprietary mixtures advertised to physicians for their use in prescribing. The Council on Pharmacy and Chemistry has investigated and shown many of these preparations to be fraudulent in one way or another, and these reports have been published in THE JOURNAL. In spite of this, these preparations have been advertised continuously to physicians, through medical journals and otherwise, and prescribed by a large number of physicians. One reason for this is that there are many physicians who have never seen these reports—who were not in active practice at the time, or who were not reading THE JOURNAL. We probably have among our readers at the present time 35,000 or 40,000 physicians who were not among the readers of THE JOURNAL twelve years ago. It is desirable, then, that we should take up, in more or less detail, several of the more widely advertised products that have been the subjects of previous reports. It has been repeatedly stated in THE JOURNAL that many of the proprietary mixtures—the so-called ethical proprietaries advertised to physicians—were no better and no worse than "patent medicines" advertised to the public.

Every physician who has the welfare of medicine at heart should put these questions squarely to himself if he has not already taken a firm stand on this whole problem: What is my attitude toward the work of the Council? Are its reports worthy of acceptance? Am I upholding the Council in its efforts to place therapeutics on a rational basis, not by blind faith alone, but by an honestly critical attitude toward it? Am I following the path of indolence by taking the advice of nostrum makers without any serious effort to determine whether they are true or false? In a word, am I really practicing medicine, or am I an unpaid agent and a dupe of nostrum makers? There are other revolutions than political. The public can be wronged just as certainly by the abuse of its confidence in clinicians as by the usurpers of political power, and when the public is thoroughly aroused the heavy hand of retribution is not likely to be too discriminating. That the sins of clinicians are standing out plain for any one who wishes to read is becoming more and more evident. There is but one short and ugly word that properly characterizes the physician who accepts a fee for prescribing that about which he has no more knowledge than has the one for whom he prescribes it. Are you with the nostrum makers or decent medicine?

The article below is the first of a series written for THE JOURNAL by one who is thoroughly conversant with the work of the Council on Pharmacy and Chemistry and can speak authoritatively on questions dealing with the action of drugs and the treatment of diseases. We believe that these articles will prove of interest and profit and that they will help physicians to answer the questions just propounded.]

[ARTICLE I]

BELL-ANS (PA-PAY-ANS BELL)

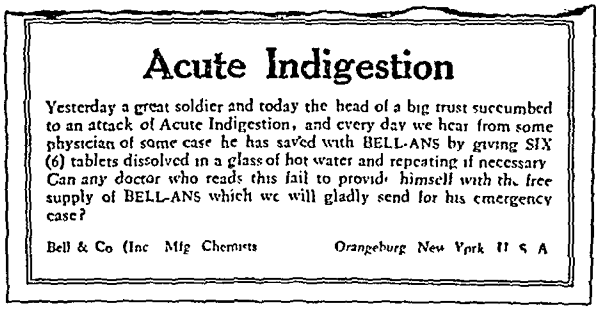
By S. Q. Lapius, M.D.

Bell-ans, for years advertised only in medical journals under the name "Pa-pay-ans (Bell)," is now advertised in newspapers as a remedy that "Absolutely Removes Indigestion." As it is still being advertised to physicians we propose to analyze the claims made for it with as much care as would be exercised in the discussion of the newest discovery in medicine, because we believe that it is desirable to show the trend of exploitation of a certain type of preparation in the medical press.

In the *New York Medical Journal* the following advertisement recently appeared on the front cover:

> ACUTE INDIGESTION
>
> Yesterday a great soldier and today the head of a big trust succumbed to an attack of Acute Indigestion; and every day we hear from some physician of some case he has saved with BELL-ANS by giving SIX (6) tablets *dissolved in a glass of hot water and repeating if necessary.* Can any doctor who reads this fail to provide himself with the free supply of BELL-ANS which we gladly send for his emergency case?

A recently purchased package of Bell-ans contained a circular in which it was stated that Bell-ans removes flatulence, vertigo, weakness and other symptoms of indigestion quickly and pleasantly; that it aids the digestion of food and tends to restore the digestive tract to a normal condition; that it relieves vomiting in pregnancy, alcoholism, seasickness and cholera morbus, besides being pleasant, harmless and effective for colic, sour stomach, feverishness, and wakefulness of infants and children. The circular contained paragraphs purporting to be taken from various medical journals, including the *New York Medical Journal, Wisconsin Medical Recorder,* the *Lancet Clinic, International Journal of Surgery,* and *Massachusetts Medical Journal.* No exact references were given to permit verification or to determine whether or not the quotations were from "reading notices" (advertisements) or from the scientific part of the journals in question. To quote one of the statements given:



Acute Indigestion

Yesterday a great soldier and today the head of a big trust succumbed to an attack of Acute Indigestion, and every day we hear from some physician of some case he has saved with BELL-ANS by giving SIX (6) tablets dissolved in a glass of hot water and repeating if necessary Can any doctor who reads this fail to provide himself with the free supply of BELL-ANS which we will gladly send for his emergency case?

Bell & Co (Inc Mfg Chemists Orangeburg New York U S A

Typical of Bell-ans advertisements as appearing in medical journals.

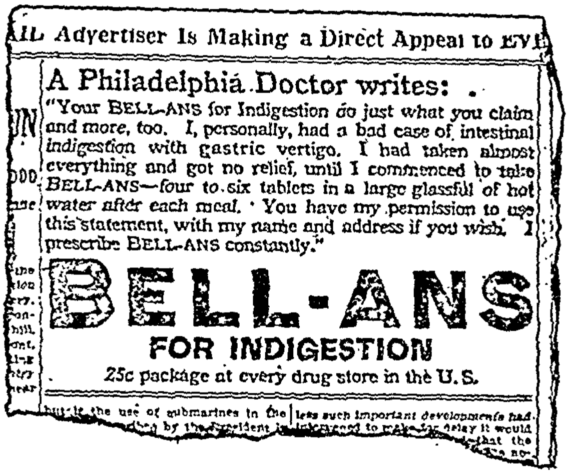
> "The results from the use of Bell-ans (Pa-Pay-ans Bell) in the treatment of indigestion are so prompt and so generally good—and the evidence of this fact is accumulating so rapidly and from such reliable sources—that we venture to suggest to our readers who have not tried this remedy that they prescribe one original sealed package of Bell-ans (Pa-pay-ans Bell) and that they carefully note the results from its use."
>
> "We suggest an original sealed package because the preparation is widely and badly imitated, and unless such a package is specified an imitation of little value may be substituted and the experiment be thus rendered useless."

It is possible that Bell-ans has been imitated, but it is not true that it is widely imitated, for no such imitation has ever been called to our attention, and we strongly suspect that the main reason for desiring that an original package be dispensed is that the patient may see for himself the name BELL-ANS plainly blown in the glass.

The circular in question states that there is no derangement of the digestive organs on which the proper dose of Bell-ans will not act quickly and pleasantly! These are samples of the claims made for Bell-ans. Let us inquire into the nature of the conditions for which the preparation is recommended and the treatment advised by well known clinicians.

The subject of indigestion is discussed by Robert Hutchison and Robert Saundby under the general title of dyspepsia in the "Index of Treatment by Various Writers," Edition 6, 1912, pp. 260-265. Hutchison says: "In the first place it must be remembered that in many patients who complain of 'indigestion' the seat of the trouble is not in the stomach at all."

The general principles to be observed in the treatment of functional dyspepsia, as given by Hutchison, are: (1) To remove the cause; (2) to adapt the diet to the impaired functional power of the stomach; (3) to administer such drugs as are calculated to stimulate or correct the particular function or functions which happen to be impaired, or disordered. Proper diet, proper mastication of food, hygiene of the mouth, and constipation are enumerated as deserving attention. Careful attention to securing a proper diet is essential. The choice of drugs depends, of course, on the conditions that give rise to indigestion, and he calls attention to the necessity of avoiding all routine treatment and compiling one's prescription with an eye to the special disorder or disorders of function, whether secretory, motor or sensory, believed to be present. Hutchison gives the following typical prescriptions to illustrate the use of drugs in the different disorders of function:


Advertiser Is Making a Direct Appeal to

A Philadelphia Doctor writes:

"Your BELL-ANS for Indigestion do just what you claim and more, too. I, personally, had a bad case of intestinal indigestion with gastric vertigo. I had taken almost everything and got no relief, until I commenced to take BELL-ANS—four to six tablets in a large glassful of hot water after each meal. You have my permission to use this statement, with my name and address if you wish. I prescribe BELL-ANS constantly."

BELL-ANS

FOR INDIGESTION

25c package at every drug store in the U.S.

Newspaper advertisement of Bell-ans, capitalizing the statements of physicians.

FOR HYPERSECRETION (HYPERCHLORHYDRIA, ACID DYSPEPSIA, ETC.)

Sodium bromid	10 grains
Bismuth subcarbonate	15 grains
Chloroform water	½ ounce

This mixture to be taken before meals.

Sodium bicarbonate.
Bismuth subcarbonate.
Heavy magnesium carbonate, of each equal parts.

A small teaspoonful of the powder to be taken mixed with a little water or milk about two hours after meals.

FOR DEFICIENT SECRETION (HYPOCHYLIA, ACHYLIA, GASTRITIS, ETC.)

Sodium bicarbonate	10 grains
Tincture of nux vomica	10 minims
Spirit of chloroform	8 minims
Compound infusion of gentian	½ ounce

This mixture to be taken before meals.

Dilute hydrochloric acid and glycerin, of each 15 minims with enough water to make half an ounce, to be taken about twenty minutes after meals.

FOR DEFECTIVE MOTILITY (ATONIC DYSPEPSIA, GASTROPTOSIS, ETC.)

Hutchison recommends the use of 10 minims of tincture of nux vomica in an aromatic vehicle, such as infusion of quassia and compound tincture of cardamom; but another aromatic bitter, such as the compound tincture of gentian, will serve quite as well, of course. This is to be taken before each meal, and for the flatulence that often accompanies this trouble he gives menthol, aromatic spirit of ammonia and spirit of chloroform, as may be needed.

FOR ACID DYSPEPSIA

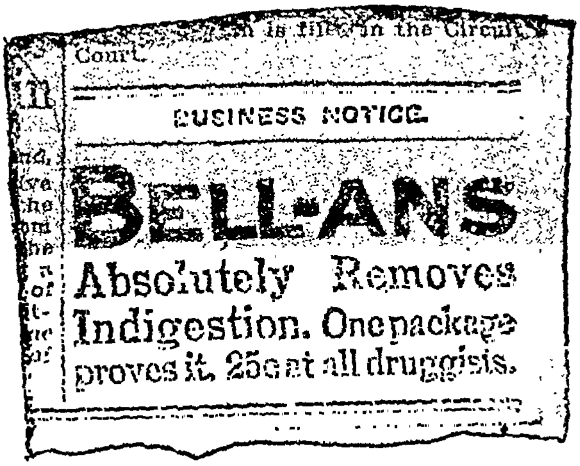
Robert Saundby recommends the following to be used before each meal for the relief of acid dyspepsia: sodium bicarbonate, bismuth subcarbonate, magnesium carbonate, of each 10 grains; mucilage of tragacanth 15 minims, and enough peppermint water to make an ounce.

These are only a few of the conditions that are discussed by Hutchison and Saundby, but they serve to show that the treatment of indigestion by a single prescription or combination is wholly irrational.

Bell-ans, both under its present name and under its older name, "Pa-pay-ans (Bell)," has always been alleged by its manufacturers to contain papain or to be a preparation of the digestive juice from the fruit of *Carica papaya* (papaw) with other substances. Various chemists have attempted to find papain present and to determine the digestive power of the tablets, but without success. For this reason THE JOURNAL suggested that the change of name from "Pa-pay-ans (Bell)" to "Bell-ans" was probably not made entirely for euphonious reasons, as alleged, especially when one considers that the name of a nostrum is its most valuable asset. It is much more likely that as analyses indicated there was not and probably never had been any papain present in the product, the name was changed for fear that some day the misleading term "Pa-pay-ans" might bring the preparation in conflict with the federal Food and Drugs Act.

Pa-pay-ans (Bell) was examined for the Council on Pharmacy and Chemistry in 1909 and the tablets were found to consist of charcoal, sodium bicarbonate, ginger, saccharin and oil of gaultheria. No digestive ferment could be detected in the tablets. Sodium bicarbonate is antacid and serves to dissolve mucus; ginger, if in sufficient amount, causes the expulsion of flatus, and charcoal, while an absorbent in the dry state, is probably useless for any therapeutic purpose whatever after it becomes saturated with gastric juice. Bell-ans, then, has all of the virtues, which are few, and all of the limitations, which are many, of a tablet of sodium bicarbonate and ginger. Its value in the treatment of acute indigestion would be limited to the value of a tablet of such a composition. It is absurd to suppose that it could have the slightest value in the far more serious conditions attended with intestinal indigestion, with the toxemia and autointoxication to which they give rise.

Bell-ans is now advertised directly to the public—but it is no less valuable on that account. True, it is a "patent medicine" in the commonly accepted sense of the term, but it is no more a "patent medicine" today than it was fifteen years ago when it reached the public, not through the direct medium of the newspapers but by the more indirect route of the medical journals and undiscriminating physicians. It is true that, in view of the serious nature of many conditions which are loosely spoken of by the public as "indigestion," its present method of exploitation is likely to make it just that much more dangerous because of the larger publicity that will be given. The point to be borne in mind is that Bell-ans is now in fact what it has always been in essence, a "patent medicine."


is filed in the Circuit Court.

BUSINESS NOTICE.

BELL-ANS

Absolutely Removes Indigestion. One package proves it. 25c at all druggists.

Typical of Bell-ans advertisements as appearing in newspapers.

Again we ask the question: How do you wish to be classified, Doctor—among those who follow blindly the lead of a firm of nostrum makers, or among the intelligent members of the profession who study their cases carefully and prescribe intelligently? The manufacturers of Bell-ans claim that 100,000 American physicians now prescribe Bell-ans, and that 600,000,000 of the tablets are sold annually. If this is even approximately true it is a serious reflection on the medical profession, for the Council examined Bell-ans and reported its findings nearly eight years ago (THE JOURNAL A. M. A., Aug. 14, 1909), and the statements made in that report are as incontrovertible today as they were then.

Correspondence

DECENCY AND SAFETY AS PUBLIC HEALTH FACTORS

To the Editor:—Forcing the nation at large, by public health legislation, to adopt the idle fancies of the rich is advocated, at least by implication, in Dr. North's "Decency and Safety as Public Health Factors" (The Journal, Oct. 13, 1917, p. 1214). He proposes that "esthetic" requirements should be introduced into public health laws, and decries the "pragmatists" and "realists" who will not put into force any compulsory requirements beyond those definitely proved to be real requisites to safety. So direct a challenge to the best trend in modern public health thought certainly deserves a reply.

We are but struggling now from the slough of "esthetic" requirements, serving no useful purpose, which the old public health presented, and your author would have us return thereto. The amount of money spent in the past fifty years, even to this day, on "esthetic" measures would have placed us, had it been properly expended to diminish disease and death, fifty years in advance of where we are now. Nothing makes public health legislation more farcical, or gains for it more bitter and deserved opposition, than the belief, right or wrong, once established in the public mind, that the measures advocated are unnecessary, or based on a fad. Yet your author actually advocates fads as a useful guide to such legislation. The one great virtue of modern public health is that it goes to the nation for recognition and support on the real merits of its measures as proved life savers and life prolongers—that it disclaims all other objects, and refuses to be muddled with them; and this one great virtue he would have us lose!

Moreover, Dr. North misses the main point of estheticism, i. e., that it is a matter of taste and training. His crowning fallacy is that such happiness or enjoyment as "esthetics" gives can be compelled by legislation. All history shows that the mass of the world prefers liberty to the "enjoyment" he advocates. The war proves this in its every detail, if proof were needed. To legislate compulsory safety is the supreme duty of every government. To legislate compulsory happiness, which always means happiness of the brand enjoyed by the legislator who at the time is legislating, would be pure Prussianism—the essence of the evils which precipitated the war.

To make a legal requirement just, it must be applicable to all citizens equally. Hence, whatever advice may be given to the citizen, compulsion of the citizen can be justified only on incontrovertible evidence of its value to all, not to a few. Presenting to the ordinary citizen for his selection both silk and cotton underclothing, "esthetics" would I presume at once point to the former. Now suppose every citizen were compelled to buy the cotton. Would not that be an outrage, if he desired silk and had the price? How much more an outrage to compel the citizen to buy the silk, especially if he had not the price. Remember that 90 per cent. of our population are too poor to afford their children even a partial high school education. Remember that 95 per cent. of our population rank no higher in financial status than that of overseers or foremen of factories, and at least 90 per cent. rank below that financial status.

To examine Dr. North's own illustration of praiseworthy "esthetics" in public health, let us consider his "business man of New York" who demands a bottled spring water because of an "esthetic" dislike to the New York City supply on the ground that it has been polluted, although it is now made safe by artificial means.

Let us lay aside the point made by the Massachusetts State Board of Health that the bottled spring waters of that state were often far more impure than the city supplies. Let us ignore the fact that, this being true, such waters were bought on prejudice and ignorance and sold through reliance on false "esthetics," fostered by tradesmen for commercial purposes. Let us suppose that the particular spring water under consideration was, as Dr. North assumes, indeed "pure." Would he then compel the 90 per cent. of the population, unable to send their children to high school from sheer lack of cash, to buy this spring water because it was admired by the "esthetic" sense (?) of the business man, in preference to the wholesome if unsentimental water of New York City? After, mind you, that 90 per cent. have paid already for the wholesome water, in labor and in taxes? Reverse the compulsion and see what an outcry there would be among the business men if they were compelled to drink one water although ready and able to buy the other.

But do not the "esthetics" really run the other way? The spring water itself was without doubt polluted once, and, then (perhaps) was purified (uncertainly, if at all) by Nature's crude filtration. The esthetics that would prefer this (supposedly) more remote pollution, and the (presumably) sufficient purification following, to the definite and definitely known purification of a good city supply is an "esthetics" too tenuous for me to grasp.

Who shall decide what is "esthetics"? I have known people of culture and refinement to revolt shuddering at the cremation of the dead because it was "unesthetic." Is, then, the slow, slimy corruption of the loved one in a moldy grave the "esthetic" demand with which we must all comply? In this dilemma, which would Dr. North "compel" by legislation? I for one would never compel either against the absurdest sentiments of any one, because there is no more safety in the one than in the other; and if greater happiness or content is the portion of those whose loved ones are disposed of in this way or that, why tear such comfort from them, since both methods are harmless?

Again, are not the "esthetics" of pasteurized milk the other way about also? What kind of esthetics is that which revolts at raw meat but advocates raw milk? However, the whole point in pasteurizing milk is to make it safe for those who cannot pay, no matter how they may wish it, the 20 cents or more per quart necessary to insure a raw milk fit for use.

Too long has mankind fought, prisoned and burned his brother to force his own fancies as the brother's law. Though the proposition be made softly and under guise of such good words as "decency" and "purity" (just as those earlier propaganda were carried out under the guise of religion and of civilization), no follower of public health as it has evolved throughout the last quarter century can possibly endorse returning it to the pit from which it has been dug with so much sweat and labor. If we must have "esthetics," by all means have a board of esthetics to legislate it through, but do not burden public health with it, for public health has serious work to do and neither men nor time nor funds for fancies, usually foolish and often definitely harmful, if not in themselves, then in distracting attention, energy and enterprise from the things that really matter.

H. W. Hill, M.D., D.P.H., London, Canada.
Director, Institute of Public Health.

OINTMENTS OF IODIN

To the Editor:—A manufacturer of certain ointments of iodin brought to me a few months ago some of his preparations and asked me to have them chemically examined. This request was granted and the examinations were made by competent chemists who ascertained that the composition of the ointments was practically in agreement with the claims of the manufacturer.

There was no statement concerning the medicinal value of these ointments. The manufacturer has seen fit to use my report as an advertisement of the medicinal value of his preparations. I am willing to assist him in his endeavor and am ready freely to express my opinion concerning the value of these preparations.

In the first place, the preparations of this manufacturer are in no way superior to preparations which any competent registered pharmacist might make.

In the second place, in my opinion, ointments containing iodin have but little medicinal value. This is not a proper form in which to apply iodin in order to get its local action.

V. C. Vaughan, M.D., Ann Arbor, Mich.

REQUEST FOR REPRINTS ON CANCER

To the Editor:—Dr. Angelo Roffo, Saenz Pena 719, Buenos Aires, Argentina, is desirous of obtaining reprints of American literature dealing with experimental and clinical problems concerning cancer. Dr. Roffo is a member of the medical faculty of the University of Buenos Aires, the leader in that country in the study of cancer problems and the representative of the faculty in the new institute now being built for the experimental and clinical study of cancer. Dr. Roffo would appreciate receiving reprints from American writers interested in cancer, and not only would file this literature for the use of workers in the cancer laboratory and hospital but also would abstract it for the Argentine medical weeklies. I am sure he would appreciate any assistance our workers might give him in this connection.

Richard M. Pearce, M.D., Philadelphia.

SIGNS OF FRENCH MAPS AND HIGHWAYS

To the Editor:—Some of the signs used on French maps are unfamiliar to Americans, even though accustomed to reading our own maps. Likewise the highways of France have indexes and warnings, the meaning of which must be understood to be useful to the traveler. Many American officers and soldiers will be traveling in France in the near future, and, in the hope of being useful to them I enclose sketches showing a few of the most ordinary abbreviations, markings and signs which I have found convenient to know in going about the country.

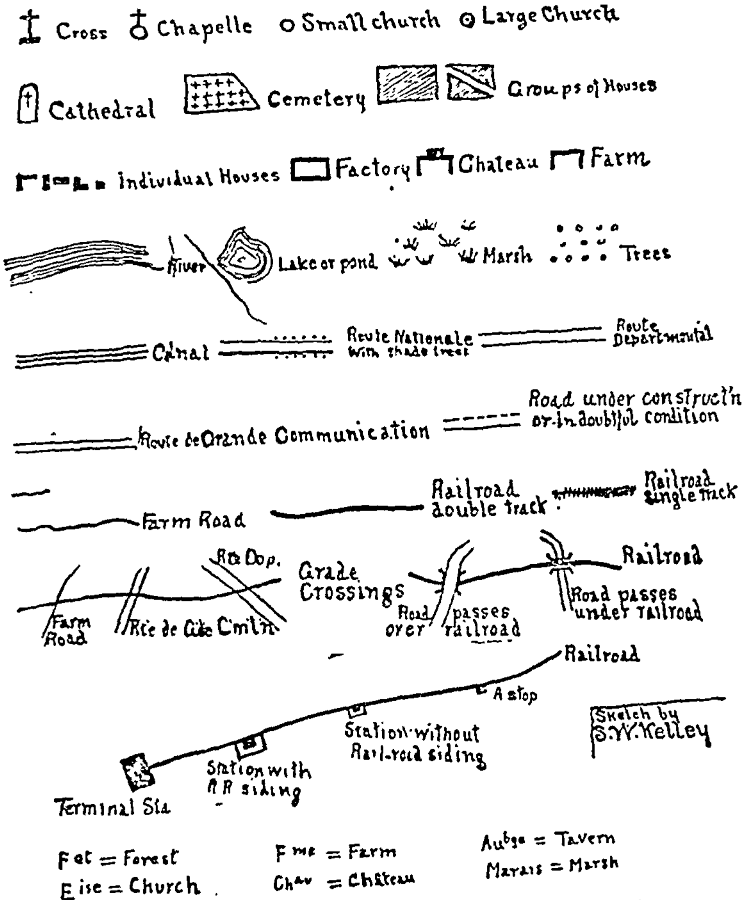


Fig. 1.—Markings and abbreviations in use on French maps.

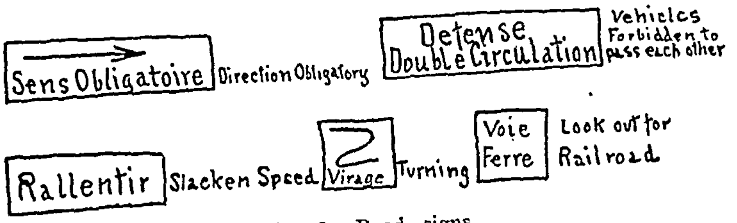


Fig. 2.—Road signs.

Samuel W. Kelley, M.D., Cleveland.
Secteur Postal 205, France.
Chirurgien, Ambulance des Alliés.

BARBARITIES IN MEXICO

To the Editor:—An interesting side-light on the barbarities practiced by the soldiery of Zapata is shown by a patient who a short time ago entered the United States Marine Hospital here suffering from acute gonorrhea. On examination it was found that the penis had been amputated about one-half inch back of the corona. The patient stated that last year he was a soldier in the Carranzista army, and in a skirmish with some of Zapata's men he was captured and severely tortured. He was told that he was to be castrated and made to eat his testicles. They finally compromised by offering him death by hanging, with the alternative of having his penis amputated. He chose amputation. The penis was amputated with a saber. He was left to his fate, but happily was picked up by an ambulance driver, who stopped the flow of blood with a bandage.

The patient further stated that he knows of men who have had their ears, nose, tongue and penis amputated by Zapata's men and Villa's men, and portions of these parts forced down the victims' throats.

The stump had evidently received some surgical attention, as the skin of the shaft had been drawn over the raw surface, completely covering it. In the center of the stump was the small orifice of the urethra. The patient stated that erections are less frequent than before the amputation, and the sexual desire is less. He experiences, however, very little difficulty in performing coitus, and has ejaculations. On admission he had a very active acute gonorrhea with an epididymitis.

R. B. Acker, M.D., New Orleans.
Assistant Surgeon, U. S. P. H. S.

THE HANDICAP OF PROPRIETORSHIP IN MEDICINE

To the Editor:—I am enclosing a reprint of my article on the "Present Status of Pituitary Extract in Labor," which appeared in The Journal, June 2, 1917, p. 1601, and also the September issue of Parke, Davis and Company's *Therapeutic Notes,* on page 89 of which they quote this article, that you may compare the two. The *Therapeutic Notes* article is ostensibly a copy, but as a matter of fact, it gives it only in part, which seems to me to be a gross misrepresentation, and one which I do not think should go unnoticed.

Joseph J. Mundell, M.D., Anacostia, D. C.

[Comment.—*Therapeutic Notes* is one of the house organs of Parke, Davis and Company. A part of each issue is usually devoted to "excerpts" from current literature. The *Therapeutic Notes* may be judged from the manner of "excerpting" the article of Dr. Mundell. Naturally the interest of Parke, Davis and Company is in those sections of the article which may be expected to promote the use of Parke, Davis and Company's proprietary preparation of pituitary extract—pituitrin. The following passages from the article of Dr. Mundell were not among those "excerpted" in *Therapeutic Notes:*

"Used here in properly selected cases, after due consideration by one who has good obstetric judgment, its results are usually happy, and it is a boon to the tired mother and her attendants."

"To step beyond these narrow confines of indications is indeed entering on dangerous territory. Especially is this true as regards the life of the baby. It is recommended in small doses by some good authorities and is frequently used in cases of slight contraction at the brim with sometimes very good results if the birth occurs within a few minutes, but frequently with disastrous results to the baby if delivery is delayed. In such cases, forceps are urgently indicated. Its use in such cases is risky beyond question. Pituitary extract is recommended in cases of postpartum hemorrhage, but ergot is undoubtedly to be preferred."

"All means should be exhausted to arrive at a definite diagnosis, and the dangers of its use should be fully appreciated and due consideration given before its administration in any case, for such a powerful drug, used indiscriminately, will surely produce sad results to mother or child or both."

"During the past two years a number of untoward effects and consequences of severe character have arisen. As far as the maternal accidents and complications are concerned, I firmly believe that were the slogan of the hour "safety first" borne in mind, a number of them could have been prevented, for beyond question this drug has been greatly abused, as it has been given in too large doses, in cases in which its use was strongly contraindicated, and often, I am sorry to say, for no reason other than the accoucheur's expediency. Its use has been reckless and careless. The many reports of its rapid and safe action

> have been one of the greatest dangers. DeLee says, 'It provides for the physician and his brother gynecologist a lot of chronic sufferers, often incurable, even after mutilating operations.' "
>
> "An analysis of the detailed reports of all these cases of ruptured uterus with one or two exceptions reveals the fact that pituitary extract was abused, being given to patients who should not have had it. To my mind, to give a dose of pituitary extract to a woman who has a contracted pelvis, mild or severe, when the head has not passed through the pelvis, is criminal and, if the obstetrician is not aware of the contraction, he is still little short of being a criminal."

In the latter part of his article in The Journal, Dr. Mundell analyzes the reports of twelve cases of rupture of the uterus, thirty-four cases of fetal deaths, and forty-one cases of asphyxia pallida in which "resuscitation was effected only after prolonged and vigorous efforts." These also were not excerpted.—Ed.]

THE ETIOLOGY AND DEVELOPMENT OF NEPHRITIS

To the Editor:—My attention has been called to the fact that in my article on this subject (The Journal, Oct. 13, 1917, p. 1223), I overlooked important experimental work which was done by Prof. Oskar Klotz of Pittsburgh and published in the *Transactions* of the Association of American Physicians in 1914.

I regret this oversight because Professor Klotz' experiments were conducted in much the same way as our own, and because in some respects he seems to have had even more conclusive results than we obtained. Professor Klotz at that time (1914) already noticed the characteristic lesions in the glomeruli produced by intravenous injections of streptococci, and he seems to have been more successful than we in obtaining, in addition, characteristic lesions in the interstitial tissue.

I hope that you will publish this letter so as to give proper credit to Professor Klotz' work in this connection.

William Ophüls, M.D., San Francisco.
Executive Head, Division of Pathology, Leland Stanford Junior University School of Medicine.

EXPEDIENT FOR RELIEVING SITUATION ARISING FROM SHORTENING OF INTERNSHIPS TO ONE YEAR

To the Editor:—At a conference of representatives of leading hospitals of this city, called recently by the Public Health Committee of the Academy of Medicine, it was ascertained that a number of hospitals, for the purpose of accommodating themselves to the program of the Medical Department of the Army, have, with some reluctance, shortened the period of their internships to one year.

All of those present at the conference agreed that an intern period of one year is insufficient for adequate clinical training.

I believe that the general adoption of an intern service of one year, especially at this time, when a large proportion of the members of visiting staffs of hospitals are being withdrawn for military service, thus increasing the responsibilities of interns, will seriously impair hospital efficiency and will react unfavorably on medical standards in the Army and in the community at large.

I quite appreciate the difficulty of relieving the situation through special legislation or by any radical change in the Surgeon-General's regulations, which now grant permission to commissioned interns to remain on the inactive list for the completion of one year of hospital service. However, a means is available of safeguarding the interests of hospitals, and indirectly of serving the public, without a radical change by, or serious embarrassment to, the Medical Department of the Army.

The expedient which I would suggest is the very simple and practical one of a change in the wording of the Surgeon-General's "Circular of Information on the Completion of Internships of Commissioned Officers" (Form I-1), permitting the period of internship "so far as the Surgeon-General's Office is concerned" to terminate in December of the year following graduation, instead of in July of that year; permission to remain on the inactive list for the period named would, of course, be granted only "if the exigencies of the service permit."

S. S. Goldwater, M.D., New York.
Chairman, Committee on Hospital and Medical Facilities.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

CATHETERIZATION OF INFANTS

To the Editor:—I was recently treating a child—a girl 1 year old—from whom I wished to obtain a sample of urine. I suggested using a catheter, but the parents had been told by a "children's specialist" that a catheter should never be used on an infant; that it was an extremely dangerous procedure and apt to cause inflammation of the bladder from which the child would never recover. Later I heard from the mother, who had taken the baby to a children's hospital, that the house physician had told her that he had never catheterized a baby and never would. I looked the matter up in several books and have asked a number of physicians their opinion; but so far I have not been able to get any satisfactory information. I do not see why using a catheter on an infant should be an operation attended with any particular danger if aseptic precautions are taken. If it is dangerous, I am unable to understand why it is not so mentioned in our textbooks. I shall appreciate an answer to this question or an opinion from you on the subject. If it is not a rational procedure to catheterize a child, I believe you will be doing a service to many members of our profession by publishing this letter and your answer. If you do this, please omit my name and address. W. C. J.

Answer.—There is no reason to believe that catheterization of female infants is any more dangerous than the catheterization of older persons. Not only is the procedure a permissible one, but it is highly advisable when there is difficulty in obtaining urine, and especially in cases in which pyelocystitis is suspected. The procedure is absolutely necessary, if one wishes to find out the nature of the infecting organism in a case of pyelocystitis, which must be done if we are to treat the patient intelligently. It should be stated here that pyelocystitis is a frequent infection in children, and would be diagnosed often if catheterization were done in cases in which the cause of the rise of temperature is in doubt.

SALVARSAN

To the Editor:—At a recent meeting of a clinical club in this city, the fact developed that men thoroughly conversant with the use of arsenical preparations (salvarsan, etc.) could give us no definite information as to which of the American and Canadian products now on the market are most reliable both as to therapeutic results and absence of toxicity.

It seems well that a statement on this matter should be made by the Council on Pharmacy and Chemistry if it is possessed of that information; and if not, that it should at once take steps to come to a decision and relieve the profession of the uncertainty of the situation.

I shall be pleased if it is possible for you to give me an answer as to which preparation I ought to use.

J. E. Tuckerman, M.D., Cleveland.

Answer.—In addition to the German made salvarsan and neosalvarsan, now practically off the market, the Council on Pharmacy and Chemistry has admitted to New and Nonofficial Remedies diarsenol, manufactured by the Synthetic Drug Company of Toronto, Canada, and arsenobenzol made by the Dermatological Research Laboratories, as products essentially the equal of salvarsan. It has also accepted *neodiarsenol*, manufactured by the Synthetic Drug Company, as essentially equivalent to neosalvarsan. The Council has under consideration at the present time salvarsan manufactured by the Farbwerke-Hoechst Company, New York.

Before accepting these preparations, the Council required evidence to show that the products are manufactured under supervision which may be expected to insure its chemical identity and uniformity and its freedom from toxicity. It should be remembered, however, that, in the past untoward effects have been reported from German salvarsan and neosalvarsan possibly due to idiosyncrasy, but more probably to the fact that certain lots (probably through some faulty technic in the manufacture) were more toxic than others. This has been the case particularly in regard to the last shipments of neosalvarsan from Germany. Recently some untoward effects from neodiarsenol have also been reported. No conclusive evidence is available, we believe, that shows difference in the toxicity or therapeutic efficacy between the German made salvarsan, diarsenol or arsenobenzol (Dermatological Research Laboratories); though reports have been received that the last product, while somewhat less soluble than salvarsan, is more nearly free from toxic action than salvarsan.

We are informed that within a short time all salvarsan, neosalvarsan and the various products identical with these will be tested by the government before their sale is permitted. This control is to be established by the Federal Trade Commission under the authority of the recently passed "Trading with the Enemy Act." This act, among other things, provides for the manufacture of synthetics covered by German patents under licenses issued by the Federal Trade Commission. Such licenses, we are informed, will provide for government control of each lot manufactured, and may also stipulate the maximum selling price.

DEATH RATE FROM TUBERCULOSIS—DISEASES WITH GREATEST MORTALITY

To the Editor:—1. How many people die annually of tuberculosis in the United States? 2. What is the percentage per thousand? 3. What is the average age of those who die of this disease? 4. In their order of mortality, what diseases occupy first, second, third, fourth and fifth places?

J. E. Brinkman, M.D., Waterloo, Iowa.

Answer.—1. According to the mortality statistics of the Department of the Bureau of the Census for 1915, tuberculosis of different parts of the body caused 98,194 deaths during 1915, which is 10.8 per cent. of the mortality charged to all causes for that year.

2. All forms, 145.8 per hundred thousand; tuberculosis of the lungs, 127.7 per hundred thousand.

3. The average age of those who die of pulmonary tuberculosis is about 35 years.

4. The death rate during 1915 per hundred thousand population was as follows:

Organic heart diseases	156.2
Tuberculosis (all forms)	145.8
Pneumonia (all forms)	132.7
Nephritis	104.7
Cancer	81.1
Cerebral hemorrhage	79.3

SOLDIERS' AND SAILORS' INSURANCE LAW

To the Editor:—I notice an editorial in The Journal of November 17 about the Soldiers' Insurance Law. This article states that the insurance should be applied for within 120 days. As I am on the reserve list, I would like to know whether this means 120 days after receipt of commission, or after receiving orders for duty. Please give me information about this law, or tell me where to find such information.

Milton J. Stern, M.D., Paris, Ky.

Answer.—Members of the Medical Reserve Corps not on active duty are not entitled to insurance either under the automatic provisions of the law or on application. The language of the Act (Sec. 401) relating to the time for applying for the insurance is: "Such insurance must be applied for within 120 days after enlistment or after entrance into or employment in the *active service* and before discharging or resignation, except that those persons who are in the active war service at the time of the application (Oct. 15, 1917) of the terms and conditions of such contract of insurance may apply at any time within 120 days thereafter and while in such service."

Medicine in Recent Fiction.—Voivenel remarks in a recent issue of *Progrès Médical* that medicine, and especially objective psychology, seems to be regarded by the writers of the day as worth flirting with. But our science is a princess who has more malice and wit than she seems to have. She likes to render ridiculous those who would flirt with her. But she is gracious to the writers who take the pains to deal seriously with her.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Colorado: Denver, Jan. 8. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

Delaware: Wilmington, Dec. 11-13. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

District of Columbia: Washington, Jan. 8. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

Florida: Jacksonville, Dec. 4-5. Sec., Dr. W. M. Rowlett, Citizens Bank Bldg., Tampa.

Hawaii: Honolulu, Jan. 10-13. Sec., Dr. G. A. Batten, Box 375, Honolulu.

Indiana: Indianapolis, Jan. 8-10. Sec., Dr. Wm. T. Gott, 84 State House, Indianapolis.

Kentucky: Louisville, Dec. 4-6. Sec., Dr. A. T. McCormack, Bowling Green.

Louisiana: New Orleans, Dec. 6-8. Sec. Pro-tem., Dr. E. W. Mahler, 730 Audubon Bldg., New Orleans.

Maryland: Baltimore, Dec. 11. Sec., Dr. J. McP. Scott, 137 W. Washington St., Hagerstown.

Minnesota: St. Paul, Jan. 2-4. Sec., Dr. Thomas McDavitt, 741 Lowry Bldg., St. Paul.

Missouri: St. Louis, Dec. 17-19. Sec., Dr. George H. Jones, 206 Washington St., Jefferson City.

National Board of Medical Examiners: New York City, Jan. 9-17. Sec., Dr. J. S. Rodman, 310 Real Estate Bldg., Broad and Chestnut Sts., Philadelphia.

New Hampshire: Concord, Dec. 10-12. Sec., Dr. W. T. Crosby, Beacon Bldg., Manchester.

North Dakota: Grand Forks, Jan. 1. Sec., Dr. G. M. Williamson, Grand Forks.

Ohio: Columbus, Dec. 4-6. Sec. Pro-tem., Dr. Herbert M. Platter, 185 E. State St., Columbus.

Oklahoma: Oklahoma City, Jan. 8-9. Sec., Dr. J. J. Williams, Weatherford.

Oregon: Portland, Jan. 1. Sec., Dr. Herbert S. Nichols, Portland.

Pennsylvania: Philadelphia, Jan. 8-10. Sec., Nathan C. Schaeffer, State Capitol, Harrisburg.

Rhode Island: Providence, Jan. 3. Sec., Dr. B. U. Richards, State House, Providence.

South Dakota: Pierre, Jan. 8. Sec., Dr. P. B. Jenkins, Waubay.

Utah: Salt Lake City, Jan. 7-8. Cor. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

Virginia: Richmond, Dec. 11-14. Sec., Dr. J. W. Preston, McBain Bldg., Roanoke.

Washington: Spokane, Jan. 1. Sec., Dr. G. N. Suttner, Baker Bldg., Walla Walla.

Colorado January Examination

Dr. David A. Strickler, secretary of the Colorado State Board of Medical Examiners, reports the written examination held at Denver, Jan. 2, 1917. The examination covered 8 subjects and included 80 questions. The percentage required to pass was 75. Nine candidates were examined, of whom 8 passed and 1 failed. One hundred and fifteen candidates were licensed through reciprocity, including 99 osteopaths. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
University of Colorado	(1915)	77.3
Chicago College of Medicine and Surgery	(1916)	89.3
Hering Medical College	(1895)	80
Harvard University	(1914)	84.4
Jefferson Medical College of Philadelphia	(1910)	81.2
Lincoln Memorial University	(1915)	78.2
Baylor University	(1913)	86.5
University of Toronto	(1907)	85
FAILED		
St. Louis College of Physicians and Surgeons	(1915)	70

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
Arkansas Industrial University	(1886)	Arkansas
Atlanta College of Physicians and Surgeons	(1910)	Georgia
Hahnemann Med. College and Hospital of Chicago	(1884)	Penna.
Illinois Medical College	(1905)	Illinois
Northwestern University	(1910)	Illinois
State University of Iowa College of Medicine	(1902)	Iowa
University of Louisville	(1911)	Illinois
Medical School of Maine	(1910)	Maine
University of Maryland	(1912)	Maryland
Barnes Medical College	(1901)	Missouri
Marion-Sims College of Medicine	(1893) (1899)	Missouri
Albany Medical College	(1901)	New York
Meharry Medical College	(1905)	Alabama
Vanderbilt University	(1912)	Tennessee
Memphis Hospital Medical College	(1886)*	Arkansas

*Official information on file indicates that this candidate is not a graduate of the medical school named.

Missouri June Examination

Dr. George H. Jones, secretary of the Missouri State Board of Health, reports the written examination held at St. Louis, June 18-20, 1917. The examination covered 14 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 117 candidates examined, 113 passed and 4 failed. Eleven candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Chicago College of Medicine and Surgery	(1916)	82.3
University of Illinois	(1916)	87.4
University of Louisville	(1917)	86.9
Johns Hopkins University	(1906)	75
Harvard University	(1917)	87.1, 89.1, 90.6
Barnes Medical College	(1907)	75
National University of Arts and Sciences (1915) 82.1; (1916) 78.8, 85.3; (1917) 75, 75.2, 79.1, 79.6, 79.7, 80.1, 81.1, 81.4, 81.8, 82, 82.1, 82.1, 82.1, 82.5, 82.5, 82.8, 82.9, 83, 83, 83.4, 83.9, 84.2, 84.3, 84.4, 85, 85.1, 85.7, 86.1, 86.1, 86.5, 86.8, 87.4, 87.6, 88, 89.1, 89.2.		
St. Louis College of Physicians and Surgs. (1913) 81.3; (1915) 80.1 (1917) 82.4, 85.1, 85.4, 87.2.		
St. Louis University (1917) 80.1, 83.2, 83.4, 83.8, 83.9, 85, 85.1, 85.4, 86.2, 87, 87.1, 87.1, 87.3, 87.4, 87.4, 87.9, 88.1, 88.1, 88.1, 88.1, 88.1, 88.3, 88.4, 88.4, 88.5, 88.7, 88.7, 89, 89.1, 89.1, 89.1, 89.1, 89.1, 92.7.		
Washington University (1916) 88.8; (1917) 83.1, 85.1, 85.5, 86.1, 86.1, 86.1, 86.7, 86.8, 87.1, 87.7, 88.1, 88.1, 88.1, 88.1, 88.2, 88.3, 90.1, 90.1.		
John A. Creighton Medical College	(1915)	88.1
Jefferson Medical College of Philadelphia	(1915)	89.8
University of Pennsylvania	(1917)	83.1
Meharry Medical College	(1916) 75, 76.1; (1917)	83.2, 84.2
FAILED		
St. Louis College of Physicians and Surgeons	(1910)	72.4
Meharry Medical College	(1916) 75, 76.1; (1917)	83.2, 84.2
University of West Tennessee	(1915)	56.1, 72.1

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
Bennett Medical College	(1913)	Nebraska
Jenner Medical College	(1914)	Illinois
Northwestern University	(1891)	Iowa
Rush Medical College	(1913)	Illinois
University of Michigan Medical School	(1913)	Michigan
Barnes Medical College	(1908)	Nebraska
St. Louis College of Physicians and Surgeons	(1909)	Penna.
	(1914)	Texas
Omaha University	(1895)	Kansas
Meharry Medical College	(1915)	Tennessee
University of West Tennessee	(1913)	Maine

Maryland June Examination

Dr. McP. Scott, secretary of the Board of Medical Examiners of Maryland, reports the written examination held at Baltimore, June 19, 1917. The examination covered 9 subjects and included 90 questions. An average of 75 per cent. was required to pass. Of the 67 candidates examined, 59 passed and 8 failed. Twelve candidates were licensed through reciprocity, and 1 candidate was granted a reregistration certificate. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Howard University	(1917)	84
John Hopkins University (1916) 78, 79, 81, 83, 84, 91; (1917) 75, 75, 77, 77, 78, 79, 79, 80, 80, 81, 81, 82, 82, 83, 83, 85, 85, 85, 86, 86, 87, 87, 87, 87, 87, 90, 91.		
University of Maryland (1903) 81; (1915) 78; (1916) 75, 76, 78, 78, 79, 80, 87; (1917) 75, 76, 76, 78, 78, 79, 80, 82, 83, 87, 90.		
Jefferson Medical College of Philadelphia (1916) 85;	(1917)	79, 83
Meharry Medical College	(1916)	78
Medical College of Virginia	(1917)	75
FAILED		
Bennett Medical College	(1914)	*
College of Physicians and Surgeons, Baltimore	(1915)	*
Johns Hopkins University	(1915)	72
Maryland Medical College (1904)*	(1913)	*
University of Maryland (1916)*	(1917)	67, 68

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
George Washington University	(1915)	Louisiana
Louisville Medical College	(1894)	W. Virginia
Maryland Medical College (1908)	(1913)	Penna.
University of Maryland (1882) West Virginia;	(1912)	S. Carolina
Harvard University	(1916)	N. B. M. Ex.
Albany Medical College	(1897)	Delaware
Western Reserve University	(1887)	Ohio
Hahnemann Med. Coll. and Hospital of Philadelphia	(1904)	Penna.
Jefferson Medical College of Philadelphia	(1916)	Michigan
Medical College of Virginia	(1895)	Virginia

* No grade given.

Hawaii September Examination

Dr. R. W. Benz, chairman of the Hawaii Board of Medical Examiners, reports that three candidates were licensed at the examination held at Honolulu, Sept. 10-13, 1917. The following colleges were represented:

College	Year Grad.	Total No. Examined
PASSED		
College of Physicians and Surgeons, San Francisco	(1917)	1
Leland Stanford Junior University	(1917)	2

Book Notices

The Secretion of the Urine. By Arthur R. Cushny, M.A., M.D., LL.D., Professor of Pharmacology, University of London, University College. Cloth. Price, $3 net. Pp. 241, with 36 illustrations. New York: Longmans, Green & Co., 1917.

This presents a critical digest of the entire literature on normal kidney function. The author states that he did not feel able "to adventure on the difficult subject of renal pathology." Hence at the end of the volume only three short chapters are devoted to glycosuria, albuminuria and nephritis. This is to be regretted, since the author's able exposition of normal kidney function would have served as a valuable norm for the interpretation of renal diseases. In the preface, Cushny registers a severe indictment of present day investigators of kidney function. "The growth in the literature on the kidney has been most extraordinary, and this increase in bulk has not gone along with an improvement in quality, but rather the reverse. No other organ of the body has suffered so much from poor work as the kidney, and in no other region of physiology does so much base coin pass as legal tender." This stricture is essentially just, and applies with equal force to the physiologist, the pharmacologist, the pathologist and the clinician. This monograph will help to speed the advent of a new day of greater accuracy and more severe critique in medical research. The book is a useful and opportune contribution to physiology and medicine.

Shell Shock and Its Lessons. By G. Elliot Smith, M.A., M.D., F.R.C.P., Dean of the Faculty of Medicine, University of Manchester, and T. H. Pear, B.Sc., Lecturer in Experimental Psychology, University of Manchester. Cloth. Price, $1 net. Pp. 135. New York: Longmans, Green & Co., 1917.

This is a remarkably fine and most timely little book. Abroad our colleagues are constantly seeing examples of shell shock, and unless present signs fail, many of our medical men, military and civil, are going to see the same thing. A more succinct and reasonable treatment of the subject can scarcely be imagined. Chapters IV and V are devoted to a spirited criticism of the British attitude on insanity and the insane, on neuroses and the neuropaths, are not particularly germane to the title of the book, and are less applicable, we hope, to the United States than to England. But the preceding chapters on shell shock are wholly admirable. Any physician expecting to see such cases should be compelled to read these chapters with care. Before the patient can be shown that he has not a mysterious, unheard of, horrible malady, the physician must be as familiar with this disorder as he is with typhoid. Before the physician can really reach an apparently inaccessible patient, in all reason he should know the reasons of his apparent inaccessibility and the principles of approach. For the attainment of this intimate acquaintance and clarity of vision, the brochure in hand will be of inestimable value. Careful perusal of the three chapters leads one to at least two definite conclusions: Shell shock has brought us no new symptoms. These patients should be handled by experts: by men equipped with the necessary brains, training, experience and proper hospital facilities.

An Epitome of Mental Disorders. A Practical Guide to Aetiology, Diagnosis and Treatment for Practitioners, Asylum, and R. A. M. C. Medical Officers. By E. Fryer Ballard, M.B., B.S., Captain R. A. M. C. (T.). Cloth. Price, $2.25 net. Pp. 211. Philadelphia: P. Blakiston's Son & Co., 1917.

When a person in a foreign country knows nothing of the language, the little books of current phrases in parallel columns are very useful. Being perhaps lost in a tangle of streets, he looks up the equivalent of "Will you kindly direct me to the Grand Hotel?" and has a fair chance of reaching his hostelry. To be sure, he may first find himself at the Grand Central Station, and then maybe at the Grand Emporium of Novelties; but he neither feels nor is so helpless as he would be without his handy volume. Captain Ballard's epitome may be compared with such a little handbook. But we hasten to add that the very first line of the preface states that "this little book is not intended for students of medicine," and the third line informs us that the author "has not aspired to write a textbook of psychiatry." For the kind of book that it does aspire to be, it is excellent. We know of no work that could be so quickly and truly useful to "practitioners" and "assistant medical officers in asylums" ignorant of psychiatry, incompetent to make an accurate diagnosis in mental disorders and to treat the insane. We do not doubt that such a book is needed, will be used, and will be a real help not only in the United Kingdom but also in the United States. That this is true is pathetic. It means that the insane and mentally unbalanced are not getting the service they should have. We should also commend the book to the host of new medical men in the army who, if they see service, are sure to see mental cases with which they are entirely unfamiliar and yet concerning which they will have to make some decision. In this connection we should add that the chapter on shell shock is vague in statement and entirely inadequate: not to be compared with the handling of the subject in the little book of Smith and Pear.

The American Encyclopedia and Dictionary of Ophthalmology. Edited by Casey A. Wood, M.D., C.M., D.C.L., Professor of Ophthalmology and Head of Department, College of Medicine, University of Illinois. Volume 11. Muscles, Ocular to Ophthalmology, History of. Cloth. Price, $6. Chicago: Cleveland Press, 1917.

The first third of the present volume is occupied by the continuation of the article on the ocular muscles, and the latter half by an instructive history of ophthalmology from the earliest times, including a brief account of ophthalmologic associations in America and American ophthalmologic journals. Concerning the character of this great work, it is believed that a judicious and courageous employment of the editorial blue pencil would have improved the historical article. The objection is not to the matter, but to the method of treatment. Other important topics in the volume are myopia, neosalvarsan, nephritis and eye symptoms, neurology of the eye, nystagmus, oblique astigmatism, and ophthalmia neonatorum (not fully treated here). The illustrations are abundant, as usual, and those of the historical article important to have preserved in a work of this sort.

A Text-Book of First Aid and Emergency Treatment. By A. C. Burnham, M.D., Medical Reserve Corps, U. S. Army, Instructor in Surgery in the Polyclinic Hospital, New York City. Cloth. Price, $2. Pp. 307, with 162 illustrations. Philadelphia: Lea & Febiger, 1917.

In this book, first aid methods are concisely and practically treated in a manner well within the comprehension of such groups as boy scout and Red Cross classes, factory foremen, first aid industrial teams, or the troops of the Sanitary Corps. The illustrations are well chosen. Every topic in the brief preliminary chapter on anatomy closes with a practical reference to first aid surgical considerations. The chapter on transportation of the injured, an adaptation of the regulations of the Sanitary Corps of the United States Army, is especially lucid and concise. The work includes a description of first aid treatment of the sick as well as of the injured. The recently perfected mechanical respirators are discussed. This small book is noteworthy throughout for the absence of anything not germane to its purpose of a clear description of first aid methods.

Sanitation for Medical Officers. By Edward B. Vedder, M.D., Lieutenant-Colonel, U. S. Army. Medical War Manual No. 1, Authorized by the Secretary of War and Under the Supervision of the Surgeon-General and the Council of National Defense. Leather. Price, $1.50. Pp. 211, with 24 illustrations. Philadelphia: Lea & Febiger, 1917.

This is one of the manuals authorized by the Secretary of War, and published under the supervision of the Surgeon-General. It is issued as a guide for medical officers in the control of sanitary work. The author claims no originality for the material presented, much of which is compiled from other books on military hygiene and sanitation. Such Army orders as are of special value to medical officers are quoted, and others are mentioned by number so as to enable ready reference by those wishing to go into any subject in greater detail. The volume is interleaved with blank pages for making notes. It is a practical handbook for the purpose for which it was prepared.

Medicolegal

Duty and Liability of Owner or Operator of Sanatorium

(Robertson vs. Charles B. Towns Hospital et al. (N. Y.), 165 N. Y. Supp. 17)

The Supreme Court of New York, Appellate Division, Second Department, says that it is the duty of the owner of a sanatorium conducted for private gain to use reasonable care and diligence, not only in treating, but also in safeguarding, a patient, measured by the capacity of the patient to provide for his own safety. In the discharge of this duty, physicians and nurses possessing that reasonable degree of learning and skill that is ordinarily possessed by persons similarly engaged must be employed, and they must act with reasonable care and diligence. In this case, a patient, who had been advised to go to a sanatorium for treatment for alcoholism, was assigned to a room on the third floor, the one window in which room was guarded with a metallic grating. A few days later a physician and a nurse attached to the hospital found him in the room with an uplifted pitcher in his hand, after he had driven forth his roommate, whom he falsely charged with an attempt to kill him. The physician's attention was attracted to the incident by having heard a sound like "rattling the screen"; that is, the metallic grating on the window. The patient, being persuasively subdued and his fear apparently dispelled, then started for the lavatory, and the female nurse asked the physician to accompany him. The physician was about to do so instantly when he heard a crash. He rushed in. He saw the body of the patient falling through the window, which was of ground opaque glass and was not guarded. He grabbed him, but could not hold him, and he fell to the ground, where he died a few minutes afterward from the injury thus caused. The case was barren of evidence that conscious suicide should have been foreseen. There was, however, evidence that the patient had a delusion that his roommate had a design to kill him, and it was inferable that he shook the window screen in his bedroom in an attempt to escape from his imaginary assailant. There was also evidence that he had alcoholic delusions, and that fear of bodily harm and an impulse to escape an imaginary foe are characteristics of these delusions; and evidence that the delusion may manifest itself, disappear and shortly recur. The court thinks the evidence recited presented a question for the jury as to whether the physician or the nurse should not, in the exercise of the requisite skill and care, have foreseen such a casualty and protected the patient from the unguarded window in the bathroom. But the court holds that a judgment against the hospital and Charles B. Towns, for damages, must be reversed, because, while there was evidence on which the jury might have found either liable, there was no evidence on which they could be held jointly. The physicians and the nurse were not the servants of both. The jury did not decide who was the master. The corporation operated the hospital, or it did not. If it did, it could be liable; if it did not, and the individual defendant was the actual operator and master, why should there be a judgment against it?

Refusing to Submit to Reasonable Treatment —Results as Evidence

(Peterson vs. Branton (Minn.), 162 N. W. R. 895)

The Supreme Court of Minnesota holds, in this action to recover damages for alleged negligent and unskilful treatment of a fracture, that, when a patient refuses to submit to the reasonable treatment prescribed by a surgeon, from that time on the fault is with the patient, and not with the surgeon. And when a patient refuses to submit to the reasonable treatment prescribed by his surgeon, the surgeon may give in evidence his opinion of what the result would have been had the treatment that he prescribed been followed. It is also recalled that this court has held that, in an action against a physician to recover damages for negligent or unskilful treatment of a patient, the result alone is not evidence of negligence; but an expert witness may give his opinion, based on the result, that the treatment must have been improper, and such an opinion is evidence on which the court or jury may find negligence.

The court says that the plaintiff, a man 49 years old, Oct. 25, 1914, sustained a fracture of both bones of the right forearm between 3 and 4 inches from the wrist. The defendant, after describing his treatment, testified that the plaintiff continued to come to his office in the hospital until some time in March, 1915; that up to the time he examined the arm, December 29, it was straight and the bones in perfect alinement; but that when he examined the arm in March he found there was a nonunion of the radius, and the ulna was crooked; that he then informed the plaintiff of the condition and advised him that further methods were necessary, and that he would have to give him another anesthetic and treat the ununited ends of the ulna so that they would unite; and that the plaintiff refused to submit to such treatment. At this stage of the trial the defendant was asked whether, in his judgment, a good arm would have resulted, if the plaintiff had followed his advice. To this an objection was sustained; but the supreme court holds that the testimony sought to be elicited was admissible under the pleadings, and that to exclude it was error.

This was not a personal injury case in which the wrongdoer claimed that the injured party could have reduced his damages by an operation to which he refused to submit. In such a case the injured party is not required to submit to an operation for the benefit of the person who caused the injury. But in this case the defendant contended throughout the trial that the condition of the arm was due to no fault of his. That he properly reduced the fracture in the first instance was conceded by the plaintiff's expert witnesses. The defendant claimed that the failure of union was due either to some act of the plaintiff, or to some cause for which neither party was responsible, a situation which the testimony showed is not unusual in cases of this character. If the defendant's claim of freedom from fault was well founded, a question he had a right to have submitted to the jury, it was his duty, on discovery of the nonunion, to advise the plaintiff of the necessary and proper treatment to be thereafter pursued. Proper advice is part of proper treatment, and if from that time on there was fault in any one, it lay with the plaintiff, and not with the defendant. It was defensive matter going directly to disprove the charge in the complaint, and not in mitigation of damages or to establish contributory negligence. The defendant claimed that in this respect as well as in all others he performed his whole duty toward the plaintiff; and in connection with his advice he had a right to state to the jury his opinion as to the result of the treatment he prescribed had it been followed.

The jury returned a verdict for $4,500 for the plaintiff, from which the trial judge required him to remit $1,500, or to have a new trial granted to the defendant; but, on account of the error in the exclusion of the testimony sought to be elicited by the question to which objection was sustained, the supreme court holds that a new trial should be granted, and reverses the order denying the defendant's motion for one.

Information Derived from and in Presence of Third Persons

(North American Union vs. Oleske (Ind.), 116 N. E. R. 68)

The Appellate Court of Indiana, Division No. 2, says, in this action brought by plaintiff Oleske to recover on a beneficiary certificate for the death of her husband, that the insured on the morning of the day on which he died was suddenly stricken with severe illness, the nature of the ailment being in controversy. The insured was unconscious, and remained in that condition until he died. The plaintiff, discovering his condition, sent for certain neighboring women, and also called a physician. At the trial, the defendant offered to prove by the physician some statement made by the plaintiff to him in the presence of such neighbors and relative to the insured's condition. The statement, if made at all, was made while the physician, assisted by the neighbors and by the plaintiff, was examining the insured with a view to treatment, the insured being at that time unconscious. The testimony was excluded as privileged, which the court holds as right. The insured, being unconscious, was unable to give to the physician any account of the cause, origin, or history of his ailment. It was necessary that such service be performed by another, if at all, and it would seem that the wife should be considered a proper person to give such information. Where the intervention of a third person is necessary in order that the patient may communicate with the physician with a view to intelligent treatment, neither the physicians nor such third person may disclose, over objection, information so communicated. To information obtained by a physician while treating his patient, the privilege may attach, notwithstanding the presence of third persons in the sickroom, where the consultation is held. It is held, however, that disinterested persons present when a patient communicates with his physician relative to the ailments of the former may testify to such communications. The privilege extends not only to communications from the patient to the physician, but to information derived by the physician from persons present at the interview. It is true that the weight which should otherwise be assigned to the New York decisions is detracted from somewhat by the fact that the governing statute of that state is not identical with the Indiana statute. Nevertheless, the court regards the situation presented here as arousing the spirit of the Indiana statute, and as a consequence that the evidence sought by the testimony of the physician was privileged and properly excluded.

Society Proceedings

COMING MEETINGS

American Association of Anatomists, Minneapolis, Dec. 27-29.
American Physiological Society, Minneapolis, Dec. 27-29.
Porto Rico Medical Association, San Juan, Dec. 22-23.
Society of American Bacteriologists, Washington, D. C., Dec. 27-29.
Southern Minnesota Medical Association, Mankato, Nov. 26-27.
Western Surgical Association, Omaha, Dec. 14-15.

MINNESOTA STATE MEDICAL ASSOCIATION

Annual Meeting, held at St. Paul, Oct. 11-12, 1917

The President, DR. HARPER M. WORKMAN, Tracy,
in the Chair

Tumors of the Bladder and Their Nonoperative Treatment

DR. W. F. BRAASCH, Rochester: In summarizing our experiences with the nonoperative treatment of tumors of the bladder, it may be said: 1. In cases of primary tumor, fulguration is applicable only to the papillomatous tumors of a relatively benign type. 2. Although the ultimate results following fulguration are much superior to those following suprapubic resection, the method does not always offer a permanent cure. 3. Recurrence most often takes place within a year following fulguration, and is usually at the site of the primary tumor. 4. Multiple recurrence is more often observed with multiple primary tumors. 5. The interval of recurrence and the evident degree of malignancy are lessened by repeated fulguration.

Cesarean Section

DR. H. T. MCGUIGAN, Red Wing: We have had no maternal mortality in our series, and only one infant mortality, which occurred one week after delivery, from causes in no way incident to the operation. These uniformly good results can be ascribed in a large measure to the fact of having the patients in the hospital and directly under control. unnecessary examinations were not made and the patients were operated on before they had become physically exhausted from long labor pains. It appears to us after our experience with the operation that it is advisable to employ it in many more cases than it is at present. One cannot help being convinced of this by watching a convalescence from a high forceps operation and a cesarean section.

DISCUSSION

Dr. H. B. Sweetser, Minneapolis: In the case of a primipara, with an undilated os, with convulsions, cesarean section seems to be a life-saving measure. About a month ago I saw a woman with a low blood pressure, who had had two convulsions. She seemed to be in a very fair condition, so that I did not advise cesarean section. She was delivered in the afternoon of a small child without any trauma; still she died. Another woman recovered from a cesarean section, and in about a week became maniacal. The condition lasted a few days, and then she recovered.

Dr. Carey Culbertson, Chicago: It has remained for the American obstetrician to emphasize the value of cesarean section for the relative indication, as it is called in the textbooks. By the relative indication we mean all of the other things for which we are now doing cesarean section, instead of the absolutely contracted pelvis. In the clinic of Dr. J. Clarence Webster, I have seen a woman with an acute anemia from placenta praevia develop an infection after a version and extraction, and I have seen a woman who is sectioned as soon as she begins to bleed. Comparing the difference in the recovery, the difference in the fetal mortality, and the difference in the subsequent morbidity, there is no question as to the advantage of cesarean section in a number of these cases.

Focal Infections in the Nose and Throat: Means of Diagnosis and Elimination

Dr. W. E. Patterson, Minneapolis: Focal infections are not wholly confined to the teeth, tonsils and accessory sinuses, but one may find the same constitutional effects resulting from a diseased appendix, or an abscess formation around an ingrowing toenail. As to the relative significance of the various foci in the head, in my opinion the teeth come first, the faucial tonsils second, then the accessory sinuses, and lastly the middle ear and mastoid. I have found vaccines in conjunction with local treatment to be a most valuable aid in many cases. The essentials in the treatment of sinus infections are drainage, and when there is a resultant anemia, some form of tonic treatment.

Effect of Tonsillectomy on Focal Infection

Dr. Norven H. Gillespie, Duluth: Joint, heart, kidney, goiter and glandular conditions show such marked improvement after tonsillectomy as to leave no doubt as to the source of the infection. The infection may be divided into two groups, that due to chronic conditions in the tonsil itself, and that reaching the tonsil from without, through the medium of water, milk and other articles of food.

DISCUSSION

Dr. Frank E. Burch, St. Paul: A wave of conservatism is passing over the profession with reference to the removal of tonsils. Their wholesale removal, especially of juvenile tonsils, is a thing of the past. There has been a lack of discrimination in determining what tonsils should and what tonsils should not be removed.

Dr. Charles M. Spratt, Minneapolis: A diseased tonsil without enlargement should be removed. Any person who has recurring muscular or joint trouble, so-called rheumatism, or arthritis, should have his tonsils removed.

Dr. J. D. Lewis, Minneapolis: It is my belief that tonsillectomies, as usually performed, are complete in only 25 per cent. of the cases. I do not believe that by any blunt or sharp dissection method one is able to escape rupture of the capsule and therefore remove the tonsil completely.

Jejunostomy: Its Indications and Methods

Dr. Charles H. Mayo, Rochester: Jejunostomy in the first loop of the intestine is very important in the maintenance of nutrition. It is used principally for palliation in inoperable diseases, and occasionally as a temporary expedient in benign lesions. When it is made low in the jejunum it is classified with enterostomy for the relief of obstruction in the small intestine. The Witzel method of inserting the tube, and the tube drawn through the punctured opening in the omentum, before it is passed through the abdominal wall, guard the opening against leakage and maintain mobility of the bowel.

Pathology and Treatment of Osteomyelitis

Dr. Alexander R. Colvin, St. Paul: It is sometimes said that if acute osteomyelitis were treated properly, there would not be a chronic stage. This is true only in part, for many cases are so insidious in onset that marked bone changes have occurred before we see them at all, and before the patient has had any symptoms impelling him to seek assistance. It is in these chronic forms that the greatest difficulty in diagnosis occurs because of the tumor-like thickening of the bone, with few symptoms; tumor-like masses of indurated tissues surrounding the bone increase the difficulty. After the removal of the sequestrums, each case demands separate consideration as to the best means of dealing with the resulting cavity. In the young, in whom the osteogenesis is comparatively rapid, the bone wax is especially valuable, if for no other reason than for furnishing a kind of drain; but occasionally when drainage ceases it keeps the cavity filled until such time as osteogenesis has built sufficient new bone to obliterate the cavity from which the wax has gradually been absorbed. In adult bones, in which osteogenesis is slow or it may fail to accomplish the desired result, the plastic use of bone, muscle, fat or skin may be desirable. During the course of the disease, joint contractures are prone to occur, and protective and mechanical treatment to prevent these are of the utmost importance. Where the sequestrum involves a large part of the shaft, fracture of the involucrum may also occur if protection is not sufficient.

DISCUSSION

Dr. James E. Moore, Minneapolis: It is our experience at the University Clinic that many patients with osteomyelitis come in who have not been recognized as such, and often present themselves with a diagnosis of rheumatism. At a very early stage the roentgenogram will not show infection in the medullary cavity of bone, even when there is a pronounced abscess at the end of the diaphysis of the long bone.

Dr. Samuel J. Mixter, Boston: An adult may have a sudden acute bone infection. Nearly the whole shaft of the tibia may be involved, and the man is very sick. An opening into the bone is made, with insufficient drainage. That man can be cured only by amputation of the leg. I have seen these patients die in from three to twenty-four hours after such an operation. Amputation will save them, whereas a conservative operation will kill them.

Colles' Fracture

Dr. Owen W. Parker, Ely: The thing of greatest importance in the treatment of a Colles fracture is to reduce it properly, and the next most important thing is not to abuse the use of splints. The successful treatment of all fractures requires good judgment, common sense, constant attention to details, a knowledge of many methods, and the election of the one which in the individual case will lead to a restoration of the form and function of the injured limb in the shortest possible time with the least danger and inconvenience to the patient.

DISCUSSION

Dr. Alexander R. Colvin, St. Paul: A fracture with a little triangular crack through the base of the ulna, without any displacement, is often mistaken for a simple sprain, and many of these injuries, without deformity, may be mistaken for fractures.

Dr. Archibald MacLaren, St. Paul: Colles' fractures should always be reduced under anesthesia. We should never cover any fracture up so that we cannot see it.

Dr. H. B. Sweetser, Minneapolis: I recall two patients who apparently had entirely recovered; but when they returned there were nonunion and deformity. In both of these cases there was evidence of syphilis. I have not seen any cases of Colles' fractures in a normal person when there was nonunion.

Dr. E. P. Hawkins, Montrose: I must protest against the general statement that unless these fractures are reduced properly they do not remain in position. One cannot always reduce them at once. If one can wait for a week and then put the patient under anesthesia, one can reduce all of them; but there are cases, as I know from personal experience, that cannot be reduced at first.

Dr. Arnold Schwyzer, St. Paul: We should not allow the remarks of Dr. Hawkins to go unchallenged, because the time when we can reduce these fractures is at the start. It is the time when we have no callus formation and no additional swelling, and I do not know of a case that cannot be reduced if one follows the advice of the essayist.

Dr. George Earl, St. Paul: Two months ago, a lineman fell from the top of a pole. Among other injuries that he sustained, the ulna was found protruding, dislocated, with a Colles fracture. It was impossible to put the hand in a straigh position to hold the Colles fracture in place because there was also a dislocation of the ulna; it was completely broken off, but by putting it up at an angle we obtained a satisfactory position.

Dr. Samuel J. Mixter, Boston: One may have a tremendous deformity, yet a perfect functional result. The cosmetic result may be bad, but the hand is just as good as ever.

Bursae

Dr. George Earl, St. Paul: Chronic ailments, especially of the extremities, may be due to inflamed bursae. While trauma was at first thought to be all important, increasing recognition has been given to the rôle of infections and other factors, such as metabolic disturbances. Conservative surgical treatment is often sufficient, but pyogenic infection demands incision.

DISCUSSION

Dr. Earle R. Hare, Minneapolis: Oftentimes the diagnosis of surgical bursae is not made, and patients are allowed to suffer indefinitely when a cure might be effected by proper treatment. The etiology is a bone of contention at the present time. There are those who believe that the etiology lies in trauma, while others believe that it lies in infection. With our advancing knowledge of infection, it is very likely that the cause lies more toward the side of infection than it does toward the side of traumatism. Some years ago I removed with perfect result a pair of prepatellar bursae that measured an inch and a half in diameter, and an inch in thickness, even though there was active suppuration going on in one bursa at the time of its removal.

Dr. Arnold Schwyzer, St. Paul: When we have to operate in these cases, whether there are simply a few small deposits or they are infected, we should remove the bursa as a whole.

Dr. Joseph R. Kuth, Duluth: In the past six or seven months I have seen six or seven cases. The impression I received was that the trouble undoubtedly followed trauma; but whether trauma was the primary or sole cause I am unable to say. These cases were notable for their chronicity.

Dr. Louis Daugherty, St. Paul: I have seen three cases of subdeltoid bursitis. In all there were calcareous deposits. I was impressed with the chronicity of the condition. These patients complained of pain in the shoulder joint which radiated down the arm, and the condition was diagnosed as neuritis.

Dr. H. B. Sweetser, Minneapolis: I had an interesting experience bearing on the diagnosis of bursitis. A woman had several sinuses around the hip joint discharging pus. One man made a diagnosis of tuberculosis of the hip. I thought it was tuberculosis of the spine. Roentgen examination showed nothing wrong with the hip. There was no interference with the motion of the vertebrae. We injected these sinuses with bismuth paste without any result, and then I operated and found that the focus of infection was a bursitis in the gluteus maximus muscle.

Dr. M. S. Henderson, Rochester: When the bursae are excised the entire sac should be taken out. In a large number of cases of bursitis which I have seen, the bursae had merely been incised and the sac had not been dissected out.

Rickets, with Especial Reference to Premature Infants

Dr. E. J. Huenekens, Minneapolis: I have been using tricalcium phosphate and cod liver oil in the treatment of rickets in breast fed infants, both full term and premature, with very good results. In the beginning I had great difficulty in obtaining a smooth and palatable mixture, but finally found that 10 per cent. of tricalcium phosphate (C. P.) in emulsion of cod liver oil (U. S. P.) makes a smooth suspension, which is readily taken by most infants.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

November, XIV, No. 5

1 *Condition of Reflexes in Poliomyelitis. J. G. Regan, Brooklyn. —p. 321.
2 *Infantile Scurvy. Its Pathogenesis. A. F. Hess, New York. —p. 337.
3 Intestinal Bacteria in Children. W. W. Ford, K. D. Blackfan and M. D. Batchelor, Baltimore.—p. 354.
4 *Relation of Reaction of Urine to Diet in Infants and Children. C. Torres, Bogota, Columbia, S. A.—p. 365.
5 *Banana as Food for Children. M. C. Pease and A. R. Rose, New York.—p. 379.

1. **Reflexes in Poliomyelitis.**—Regan points out that the most common symptom of poliomyelitis is an alteration in the reflexes accompanying or following a short febrile period. The patellar reflex is most frequently affected owing to the common involvement of that region of the spinal cord which innervates the quadriceps extensor group of muscles. It was altered in various ways in 81 per cent. of 818 cases. Hyperactivity of the knee jerks is usually, if not invariably, the first change to occur in the preparalytic stage. Hyperactivity of the patellar reflex is most frequent in the meningitic and ataxic cases, and in the combined types of the disease in which meningitic symptoms were prominent. Absent or normal response is the rule in purely bulbar cases, except in the very early stages. An exaggerated reflex may be encountered in an atrophied and obviously paralyzed leg. Absence of the knee jerk is most frequently encountered in the myelitic and bulbar types of the malady.

The patellar reflex may remain normal throughout the entire paralytic phase, especially in bulbar and ataxic cases. It is also common in myelitic cases when the paralysis is limited to the upper extremities and trunk. It is scarcely ever encountered where the hydrocephalus is at all marked. The plantar reflexes are exaggerated in the preparalytic stage. The reflex was alterated in 41 per cent. of 643 cases specified in the paralytic stage. An exaggerated response may persist into the paralytic stage, more especially in the meningitic and ataxic classes of cases. A diminished reaction was found most common in the ataxic, the myelitic meningitic, and the purely myelitic forms of the disease. The reflex was absent most frequently in the purely bulbar and in the combined bulbar and myelitic cases. A normal reaction was encountered most often in the ataxic, bulbar myelitic and bulbar meningitic forms of the malady. Often the first sign of improvement in cases with marked paralytic involvement is the gradual reappearance of the reflex. The Babinski phenomenon is relatively rare in poliomyelitis, but it occasionally occurs in the meningitic form of the disease. Its presence in a case in which the diagnosis was doubtful would always be decidedly in favor of tuberculous, and, to a less extent, cerebrospinal meningitis. A true ankle clonus is likewise very rare in contradistinction to the other forms of meningitis. The pupillary reflex is but little altered.

2. **Infantile Scurvy.**—Hess emphasizes the fact that infantile scurvy is an intestinal intoxication or an autointoxication due to the overgrowth of harmful bacteria in the intestine. It is the product of an unbalanced flora which is no longer controlled by a proper dietary. Oliguria is a common symptom of scurvy. The mild therapeutic effect of citric acid may be ascribed partly to its diuretic properties. Orange juice also was found to bring about marked diuresis. One of the striking and important symptoms of scurvy is a susceptibility to infection (furunculosis, nasal diphtheria,

"grip," etc.). Some hemorrhages are due to this secondary infection, and are to be regarded not as scorbutic, but rather as focal complications. Other hemorrhages are truly scorbutic. Scurvy, however, is essentially a disorder characterized by malnutrition and not by hemorrhage, taking months to develop, and, from a clinical point of view, frequently latent or subacute.

4. **Diet and Reaction of Urine in Children.**—Torres points out that the difficulties often encountered in changing the reaction of the urine in children are very much diminished when a suitable diet is prescribed. Diminishing the amount of protein in the diet to 2 gm. and sometimes to 3 gm. per kilogram will often in itself render the urine alkaline without using a drug. In cases in which the amount of protein reaches the lowest physiologic limit without turning the urine alkaline, one may continue to diminish the acidity by adding vegetables to the diet. In older children with whom the food is more varied, one can do much by regulating the diet in accordance with the principles outlined in this article. In cases in which vegetables are used to turn the urine alkaline, one must use, if possible, vegetables in which the amount of protein is smaller in proportion to the salts, like fruits, rice, wheat, etc., rather than those which have a large amount of protein like peas, beans, etc. Vegetables which contain purins, like coffee, tea and cocoa, may increase the acidity, because they may produce uric acid. In cases of infection, especially in infections of the urinary tract, and in cases of starvation, the urine tends to become more acid than in other conditions; therefore it is more difficult to render it alkaline. When drugs are used without the proper diet, the doses necessary to make the urine alkaline are much larger than is ordinarily believed. The action of drugs (either acid or alkaline) is very fleeting; therefore they should be given in large and frequent doses.

5. **Banana as Food.**—Numerous digestion experiments were performed by Pease and Rose to determine the food value of the banana. The results of their experiments show that the banana is a useful fruit that can with profit enter liberally into the child's dietary provided it is fully ripe or well cooked. If eaten baked in the yellow stage of ripeness or if eaten raw when fully ripe, the banana makes a delightful and highly nutritious article of food. Its composition does not warrant the use of the banana as the main component of the child's dietary, but it can compete well with other fruits and is decidedly to be preferred to candies. The nutritional value is relatively high, approximately one calorie per gram of pulp; and its carbohydrates, when it is fully ripe or cooked, are not less assimilable than those of cereals and potatoes. In the raw food the digestibility is directly proportional to the ripeness of the fruit. There is no positive evidence that the banana influenced bowel movements. In the many tests there was no suggestion whatever of any deleterious effect from consuming large amounts of fully ripe bananas. Prolonged use of the underripe fruit, on the other hand, developed undesirable symptoms. The banana ought not to be eaten raw until after the brown spots begin to appear. The brown color of the peel, however, should not be confused with the darkening due to bruises. An injured banana is soon invaded by molds and yeast cells. The banana properly handled and allowed to ripen is a wholesome food, uncontaminated by dirt and pathogenic germs even if purchased from the push cart in the congested streets.

American Review of Tuberculosis, Baltimore

October, I, No. 8

6 *Rôle of Surgery in Treatment of Intestinal Tuberculosis. E. Archibald, Montreal, Canada.—p. 449.
7 *Treatment of Tuberculous Hemoptysis with Thromboplastin and Euglobulin. G. Mannheimer and S. L. Wang.—p. 468.
8 Tuberculosis and Pregnancy. Study of Three Hundred Cases with Review of Literature. S. A. Douglass and J. E. J. Harris, Mount Vernon, Ohio.—p. 478.
9 *Experiments with Tuberculous Sputum Twenty-Two Years Old. N. B. Burns, Boston.—p. 484.
10 Clinical Observations Derived from Examination of Over Three Thousand Chests Checked by Stereoroentgenograms. K. Dunham, Cincinnati.—p. 489.
11 Cone and Collateral Circulation in Pulmonary Tuberculosis. K. Dunham, Cincinnati.—p. 498.

6. **Surgical Treatment of Intestinal Tuberculosis.**—Archibald says when the small bowel alone is involved, there is present constipation, often quite marked and there is no thickening or mass, and in particular no tenderness to palpation localized in the cecal region. When the cecum with or without the ascending colon is involved, and the small bowel is free, there is present diarrhea or alternating constipation and diarrhea, and there is always to be felt a fairly defined thickening, sometimes even a mass, and there is tenderness to palpation in the cecal region. When both small bowel and cecum are involved there is a mixture of the above signs and symptoms. When the transverse and descending colons are diseased in addition, there are very rarely any signs that point to it; these are comparatively silent regions. When the appendix alone is tuberculous, it is not possible before operation to exclude the possibility of disease in the cecum; one can only say that there is disease in that region. Between simple appendicitis and tuberculous disease it is often difficult to make a diagnosis; but it may be said that, where definite thickening of the tissues in the appendix region is felt, without there being an acute inflammatory reaction, and with a history of chronic slight pain and of occasional subacute attacks with persisting soreness, then the condition is much more suspicious of tuberculosis of the appendix, and possibly also of the cecum, than of simple appendicitis. While in the majority of cases of intestinal tuberculosis the lungs are already seriously diseased, and while in such cases the early hopes of bringing about arrest of the pulmonary condition by surgical removal of the diseased bowel have not on the whole been realized, it may still be emphasized that complete relief of bowel misery in these distressing cases may very often be accomplished by a well planned and carefully executed operation. The good cases with but little pulmonary trouble and with eradicable bowel disease may frequently be cured by operation.

7. **Thromboplastin and Euglobulin in Hemoptysis.**—Twenty-three cases with moderate or copious hemorrhages which had a tendency to continue were treated by Mannheimer and Wang. All had definite pulmonary tuberculosis with positive sputum. Other medicinal treatment was omitted for the time being. In the beginning small doses were used, as nothing was known about the effects. They were subsequently increased and also given more frequently. When a hemoptysis recurred in the same individual at a later period different dosages were administered. This refers only to thromboplastin, which was used in 23 instances. In two cases a hemorrhage ceased after the injection of thromboplastin, but recurred subsequently and was not influenced by a repetition or increase of the dose. In all the other cases there was even no apparent benefit. Euglobulin was administered fifteen times. There was no improvement in any case. A few patients showed slight reactions as evidenced by a chill, elevation of temperature and general malaise. One developed a typical serum rash. These reactions were not severe and were of short duration. Altogether the author's results with thromboplastin and euglobulin in the treatment of tuberculous hemoptysis have been negative.

9. **Tuberculous Sputum Twenty-Two Years Old.**—In all the material examined by Burns acid fast organisms resembling tubercle bacilli structurally and in staining qualities were seen to be present. They were more numerous in the dried material in which no other organism could be found. No growth was obtained such as would prove, or even suggest, that these organisms still retained their viability. Innoculation of both culture mediums and guinea-pigs produced only negative results in the attempts to recover living tubercle bacilli from the material examined.

Boston Medical and Surgical Journal

November 1, CLXXVII, No. 18

12 *Use of Normal Blood Serum, Particularly with Reference to Treatment of Wounds. T. Leary, Boston.—p. 611.
13 Preparation of Blood Serum for Use. T. Leary and F. H. Dunbar, Boston.—p. 617.
14 *Anaphylactic Reactions to Normal Serums. T. Leary, F. H. Dunbar and J. W. Watson, Boston.—p. 618.
15 Case of Streptococcus Meningitis Successfully Treated with Normal (Human) Serum. F. P. McCarthy, Boston.—p. 621.

16 *Treatment of Wounds with Normal (Béef) Serum. J. H. Shortell, W. F. Cotting and T. Leary, Boston.—p. 622.
17 Physical Examination of Factory Employees; Two Thousand Consecutive Cases and Defects Found. R. W. Cutler, Worcester.—p. 627.
18 Future of Medicine. C. W. Eliot, Boston.—p. 631.

12. **Normal Blood Serum in Treatment of Wounds.**—Leary is convinced that normal serum may be accepted as a natural physiologic solution, readily miscible with the tissue secretions, and bland in its action, apart from certain toxic and anaphylactic properties, now regarded as useful under proper control; it possesses natural antibacterial properties; it is the storehouse of the specific antibodies; it contains ferments capable of digesting tissue detritus and exhibiting other useful activities; it is employed successfully in controlling hemorrhage other than that form (rhexis) requiring mechanical control; it is fitted to serve as a culture medium for tissue; it is able to excite the protective machinery in a nonspecific manner, useful in therapy; it provokes a desirable leukocytosis, valuable in the treatment of infections.

14. **Anaphylactic Reactions to Normal Serums.**—The clinical application by the authors of beef serum in the treatment of wounds has been followed by no anaphylactic phenomena when the serum has been applied to wound surfaces. In six cases injections of serum were made, either subcutaneously or into the deep tissue. The amount injected was about 15 c.c. In three of these cases chills occurred within two hours of the injection. In only one case was the chill marked, the temperature reaching 103. In no case did a delayed anaphylactic reaction appear.

16. **Wounds Treated with Normal Beef Serum.**—The results obtained by the authors in a variety of cases show that serum will control a septic process, wherever contact is made between the serum dressing and the infected tissue. It is absolutely harmless to normal tissue. As a prophylactic agent in fresh wounds it is of value. Serum is a most marked stimulant of granulations. The authors believe that grafting can and should be practiced earlier following the use of serum than under any other agent. Injections of unheated beef serum are followed by rises in temperature, usually slight, perhaps with chill, but the reactions are short and not severe. Used as a dressing to wounds, no matter how large the surfaces are, it gives rise to no anaphylactic response.

Journal of Cancer Research, Baltimore

October, II, No. 4

19 *Relation of Induced Cancer Immunity to Tissue Growth and Tissue Degeneration. F. D. Bullock and G. L. Rohdenburg, New York.—p. 455.
20 *Splenectomy Exerts No Appreciable Influence on Immunity Against Transplanted Tumors. F. D. Bullock and G. L. Rohdenburg, New York.—p. 465.
21 *Loss of Power to Produce Sarcomatous Transformation in Stroma. W. H. Woglom, New York.—p. 471.

19. **Relation of Induced Cancer Immunity to Tissue Growth.**—It is claimed by Bullock and Rohdenburg that induced immunity to transplanted cancer is not solely due to growth or the metabolites of growth of the immunizing agent, nor is it due to death and degenerative metabolites of the injected material.

20. **Influence of Splenectomy on Immunity Against Tumors.**—Bullock and Rohdenburg found that splenectomy has no effect on the persistence of immunity induced by the receding rat sarcoma 7; neither does it influence the fate of regressive tumors. Splenectomized animals are no more resistant to immunizing agents than are normal animals. Splenectomy neither increases the percentage of takes nor favors the growth of spontaneous tumor grafts.

21. **Sarcomatous Transformation in Stroma.**—A transplantable mouse carcinoma, which exhibited in the first generation the power to cause sarcomatous transformation in its stroma, lost that power after the fourth generation, and has not regained it during three years cultivation. The question is raised by Woglom whether mouse tumors containing keratin may not, perhaps, induce sarcoma development in their stroma more often than other types of carcinoma.

Journal of Cutaneous Diseases, Chicago

October, XXXV, No. 8

22 Erythema Figuratum Perstans; Report of Cases. W. H. Mook, St. Louis.—p. 635.
23 Focal Infection in Etiology of Skin Disease. E. D. Chipman, San Francisco.—p. 646.
24 *Glycerin. D. W. Montgomery, San Francisco.—p. 662.
25 *Relation of Fruit Ingestion to Cutaneous Diseases. A. Davidson, Los Angeles.—p. 665.
26 Lymphadenosis Cutis Universalis, Associated with Generalized Erythrodermia and Atrophy of Skin. F. Wise, New York.—p. 669.

24. **Therapeutic Use of Glycerin.**—Glycerin is freely miscible in all proportions with water and with ordinary alcohol, it mixes well with all the ointment bases, and is an excellent solvent. In prescribing mercuric chlorid for tinea versicolor, by adding glycerin, the skin is kept moist and the medicament is retained. The following prescription is written by Montgomery:

℞	Hydrarg. bichlorid	53
	Glycerin	15
	Spts. vini rect. dil.	240

M. Sig.: Rub in well once a day.

One of the best lotions for roughness of the hands, as in chronic eczema, is composed of caustic potash (KOH), glycerin, alcohol and water:

℞	Potassii Hydroxidi	1.00
	Glycerini	
	Spts. vini rect.	āā 66.00
	Aq. rosae	ad 200.00

M. Sig.: Use on the hands once a day.

Petrolatum is the fatty base usually prescribed in ordering a paste, but glycerin may be employed. Such a prescription would be:

℞	Amyli	
	Zinci oxidi	āā 15.00
	Glycerini	30.00

M. Sig.: Apply by spreading on with the hand.

The zinc oxid glycerin jellies form another set of preparations that, when judiciously employed, give excellent service. A formula that Montgomery has found excellent consists of:

℞	Gelatini	46.00
	Zinc oxid	28.00
	Glycerin	12.00
	Aq. ad.	114.00

Heat the water and dissolve the gelatin in it, and then add the glycerin and the oxid of zinc and stir until cold. This makes 200 gm., a little over 6 ounces, which is a convenient amount to dress a surface equal to that of both legs.

25. **Relation of Fruit Ingestion to Cutaneous Diseases.**—According to Davidson if all fresh fruits were stricken from the dietary, one-third of the sickness incidental to childhood and early life would be eliminated. He says that of all California fruits the orange is the most deleterious. The strawberry outranks it as a cause of urticaria but the orange is more prone to cause the furred tongue, cloyed appetite and general depression, a symptom group that is classed as "biliousness." The evil lies wholly in the pulp or cellulose, the juice is perfectly wholesome. Oranges exhibit their poisonous qualities most intensely when eaten fresh off the tree. When cold stored for a few weeks they lose these poisonous qualities and may then be eaten with impunity. Next in order of unwholesomeness come the peach, apricot, plum and cherry. Pears, apples, grape-fruit and grapes seem to produce no anaphylactic symptoms. Dried fruits such as dates, figs and raisins are valuable foods and have apparently no direct action on the skin. Figs are the only dried fruit that have a noticeable laxative action. In mild cases of constipation two or three figs eaten before retiring produce satisfactory results. The imported fig alone has this quality; California figs, including the fertile seeded varieties, do not seem to have this virtue. Raisins, if freely eaten, may cause an irritative diarrhea and in an unusual way; the skins are somewhat tough and difficult to digest and are prone to adhere by their flattened surfaces to the valvæ conniventes, where they may remain for some time before irritation is produced. The musk melon or canteloupe is apparently harmless, but Davidson does not feel quite sure about the watermelon.

The melons belong to a family of plants that in their wild state are drastic purgatives and in the instances where they disagree, they may have possibly reverted to the family habit. Many people eat all manner of fruit not only with impunity but with pleasure and benefit, as it gives them that feeling of repletion that is essential to mental well being and prevents the excessive use of the ordinary proteins. There is a class of people who have digestions akin to those of the herbivora, who can eat, satisfactorily digest and assimilate all manner of fruits and vegetables, and examination of the stools show that the digestion of the cellular elements is complete. These people have one distinguishing feature: they all show a tendency to constipation and high blood pressure. In practice, then, one may lightly regard the possibility of anaphylaxis in these people. On the other hand, in those who suffer from catarrhal affections of the large bowel (and these affections are very numerous, ranging from mild catarrhal inflammation to membranous colitis) the anaphylactic action of fruits is liable to be very marked. There is, too, the possibility that the frequent association of anaphylaxis and colitis may be due to the parenteric action of the colon bacillus gaining access to the blood through the damaged points in the mucous lining.

Journal of Infectious Diseases, Chicago

November, XXI, No. 5

27 *Etiology of Common Colds. Probable Rôle of Filtrable Virus as Causative Factor; with Experiments on Cultivation of Minute Micro-Organism from Nasal Secretion Filtrates. G. B. Foster, Jr.—p. 451.
28 Hemolysin Production and Acid Production by Streptococci. S. Sekiguchi, Chicago.—p. 475.
29 Some Factors in Swimming Pool Control. W. D. Stovall and M. S. Nichols, Madison, Wis.—p. 484.
30 *Preparation and Method of Using Toxin-Antitoxin Mixtures for Active Immunization Against Diphtheria. A. Zingher, New York.—p. 493.
31 Effect of Anilin in Rabbits. M. W. Brown, Chicago.—p. 497.
32 *Wassermann Reaction with Glycerolated Human Serum More than a Year Old. E. H. Ruediger, Bismarck, N. D.—p. 502.
33 *Rocky Mountain Spotted Fever in California. J. G. Cumming, Berkeley, Calif.—p. 509.
34 *Complement Fixation with Specific Antigen in Acute Poliomyelitis. M. Neustaedter and E. J. Banzhaf.—p. 515.

27. **Etiology of Common Colds.**—From the experimental evidence presented by Foster it seems that the following facts have been established: Common colds of the ordinary type are infectious. It has been demonstrated experimentally that the virus of common colds occurs in the nasal secretions; and that this virus is capable of passing through Berkefeld filters which are impermeable to ordinary bacteria. By the employment of special anaerobic methods the virus of common colds has been cultivated in vitro by Foster, and has proved capable of repeated recultivation in subcultures. Experimental inoculations have demonstrated that Berkefeld N filtrates of subcultures of the virus, in the second generation at least, are infective. A peculiar minute micro-organism has been isolated from cultures made from the filtered nasal secretions in common colds. This micro-organism can be passed through Berkefeld N filters, and has been recultivated from culture-filtrates. Although conclusive proof of its nature has not been adduced, the experiments suggest that the micro-organism described bears a definite relation to the true infective agent. Analysis of the results of Foster's experiments showed that of the ten men inoculated, seven developed clear cut and definite symptoms of acute coryza; two reacted questionably, while one remaining case exhibited no symptoms. The experiments were adequately controlled.

30. **Toxin-Antitoxin Immunization against Diphtheria.**—The indications for active immunization with toxin-antitoxin are divided by Zingher into two groups: (*a*) as a general prophylactic measure, and (*b*) to control outbreaks of diphtheria. It is a safe and convenient rule to follow to immunize with toxin-antitoxin all children below 18 months of age irrespective of the Schick test they may show at the time of immunization. The immunity developing from toxin-antitoxin is slow in appearing, and is, therefore, not a reliable safeguard in hospital wards where children are crowded together, and suffering from various contagious diseases. But in institutions where small outbreaks of diphtheria have occurred, or where diphtheria is more or less constantly present and clinical cases and bacillus carriers steadily appear, Zingher says, the use of antitoxin alone has often been insufficient to stamp out the disease, and the combined application of the Schick test and active immunization with toxin-antitoxin has given most successful and encouraging results.

32. **Wassermann Reaction with Old Glycerolated Human Serum.**—Ruediger has found that pure glycerol is an ideal preservative for human serum intended for the Wassermann reaction. In order to prevent the serum from becoming anticomplementary, it must be heated to about 56 C. for thirty minutes and then be mixed with an equal volume of glycerol. Serum kept for more than a year gave practically the same results as when fresh and without preservative.

33. **Rocky Mountain Spotted Fever.**—The results of animal inoculations in Cumming's cases definitely establish the occurrence of Rocky Mountain spotted fever in California. The occurrence of a case in Ventura County marks that region as a new area of possible prevalence of the disease in California.

34. **Complement Fixation in Acute Poliomyelitis.**—Neustaedter and Banzhaf have obtained a specific antigen for complement fixation in poliomyelitis by digesting poliomyelitic virus with trypsin. A 5 per cent. suspension of brain and cord of monkeys that have died of poliomyelitis is filtered through a Berkefeld or Heim filter, sterile water being used as the menstruum. The trypsin is added in proportion of 1:50 and permitted to act at room temperature for three hours; 0.4 per cent. tricresol is then added to stop further action by the trypsin.

Journal of Nervous and Mental Disease, Lancaster, Pa.

October, XLVI, No. 4

35 *Duration and Classification of Brain Tumor. E. D. Bond, Philadelphia.—p. 241.
36 *Reaction of Pupil to Colored Light. J. A. Cutting, Agnew, Calif. —p. 246.
37 Central Atrophy; Report of Cases. J. H. W. Rhein, Philadelphia. —p. 251.
38 Lesions of Frontal Lobe Simulating Cerebellar Involvement, *Differential Diagnosis.* A. Gordon, Philadelphia.—p. 261.

35. **Brain Tumor.**—A woman of 49 had a history of convulsions for twenty-nine years, headaches for two years, and many of the usual localization symptoms of brain tumor for four months before her death. Necropsy showed a tumor which might be classed as a glioma, but which Bond says should be considered as coming from a precursor of the glia cell.

36. **Reaction of Pupil to Colored Light.**—Cutting has found that the pupil reacts differently to different colored lights, giving a greater reaction in some than in others in the following order: white, yellow, reddish yellow, green, blue and violet, thus following the luminosity of the spectral colors. There is no reaction specific to different diseases—the same law holds for the paretic as for the hysteric. There is a distinct clinical value in using the green light as a "measure" for amplitude of reaction, which cannot be obtained from white light. It is a convenient method for measuring the amount of light necessary to produce a pupillary response.

Journal-Lancet, Minneapolis

November 1, XXXVII, No. 21

39 Mechanical and Surgical Treatment of Anterior Poliomyelitis. A. J. Gillette and C. C. Chatterton, St. Paul.—p. 691.
40 Selection of Donor for Transfusion. A. H. Sanford, Rochester. —p. 698.
41 Carcinoma of Colon; Report of Cases. G. M. Williamson, Grand Forks, N. D.—p. 702.
42 Bronchoscopy and Esophagoscopy; Report of Cases. A. D. McCannel, Minot, N. D.—p. 704.

Medical Record, New York

November 3, XCII, No. 18

43 What American Soldier Now Fighting in France Should Know About Tuberculosis. S. A. Knopf (New York and Paris), and W. H. Welch, Baltimore.—p. 751.
44 Cloudy English and Cholecystostomy. D. H. Stewart, New York. —p. 756.
45 Premature Old Age. J. M. Taylor, Philadelphia.—p. 758.
46 Emergency Head Surgery. C. E. Dowman, Atlanta, Ga.—p. 760.
47 Protein Disorders and Convulsions. F. J. Farnell, Providence, R. I.—p. 763.
48 Modern Treatment of Syphilis. C. W. Shropshire and C. Watterston, Birmingham, Ala.—p. 766.

49 Case of Hydrophobia; Attempted Specific Medication with Immune Human Serum. O. Berghausen, Cincinnati.—p. 768.
50 Points on Nitrous Oxid. R. G. McGahey, Birmingham, Ala.—p. 769.

Michigan State Medical Society Journal, Grand Rapids

November, XVI, No. 11

51 Uncinariasis Experiences in Eastern Kentucky. B. N. Epler, Kalamazoo.—p. 455.
52 Medicine on Two Battle Fronts. J. D. Dunlop, Alpena.—p. 458.
53 Focal Infection. W. Northrup, Grand Rapids.—p. 462.
54 Talipes Equino Varus. E. A. Linger, Rockland.—p. 464.
55 Sudden Death in Case of Syphilitic Aortitis. A. C. Furstenberg, Ann Arbor.—p. 468.
56 Case of Hysterical Blindness. C. D. Camp, Ann Arbor.—p. 470.
57 Case of Premature Separation of Placenta Complicating Nephritic Toxemia. L. L. Bottsford, Ann Arbor.—p. 472.
58 Case of Pellagra. J. A. Elliott, Ann Arbor.—p. 475.

Missouri State Medical Association Journal, St. Louis

November, XIV, No. 11

59 Progress in Obstetrics. B. G. Hamilton, Kansas City.—p. 465.
60 Lumbar Puncture in Alcoholism. F. M. Barnes, Jr., and E. E. Hein, St. Louis.—p. 469.
61 Preservation of Arm Function After Operations for Carcinoma of Breast. W. T. Coughlin, St. Louis.—p. 475.
62 Plea for Less Operative Interference in Treatment of Organic Stricture of Urethra. L. Bartels, St. Louis.—p. 479.
63 Protein Indigestion in Infants. J. Zahorsky, St. Louis.—p. 484.
64 Two Cases of Idiopathic Tetanus Due to Decayed Teeth. E. W. Saunders, St. Louis.—p. 485.

New Orleans Medical and Surgical Journal

November, LXX, No. 5

65 Present Status of Inguinal Hernias. E. D. Martin, New Orleans.—p. 408.
66 Syphilis of Thyroid; Report of Three Cases. J. A. Storck, New Orleans.—p. 414.
67 Importance of Rest on After Results of Pelvic Infections. W. B. Chamberlin, Baton Rouge.—p. 418.
68 Repair and Treatment of Fractures. I. Cohn, New Orleans.—p. 419.
69 Gastric Crises of Tabes; Report of Cases. A. L. Levin, New Orleans.—p. 425.
70 First Case of Leishmaniosis Cutanea in Venezuela. J. Iturbe, Caracas, Venezuela.—p. 430.
71 Anatomy of Cercaria of Schistosomum Mansoni. J. Iturbe, Caracas, Venezuela.—p. 433.
72 Influenza. A. J. Reynolds, Fort Necessity.—p. 434.
73 Imbecility; Asexualization as a Means of Prevention. H. L. Fougerousse, Pineville.—p. 437.
74 Tetanus Resulting from Bite of Pig. J. T. Cappel, Alexandria.—p. 440.
75 Suprarenal Syndrome in Paludism. C. Fraga, Bahia, Brazil.—p. 443.
76 Blister Beetles as Public Nuisance. A. J. Chalmers and H. H. King.—p. 445.
77 Mycetoma and Pseudomycetomatous Formations. A. J. Chalmers and R. G. Archibald.—p. 455.

New York Medical Journal

November 3, CVI, No. 18

78 Antitoxin for Gaseous Gangrene. C. G. Bull, New York.—p. 821.
79 Weight of Clothing and Its Relation to Weight of Child in First Five Years of Life. J. P. C. Griffith, Philadelphia.—p. 823.
80 Diaphragmatic Breathing. I. H. Hance, Lakewood, N. J.—p. 825.
81 Influence of Labor on Brain Development of Child. M. P. E. Groszmann, Plainfield, N. J.—p. 827.
82 Manic Depressive Psychoses Associated with Malignant Conditions. S. L. Immerman, Philadelphia.—p. 828.
83 New Type of Rotary Mesh Filter for Use in Deep Roentgen Therapy with Special Reference to Vesical Neoplasms. W. H. Meyer, New York.—p. 829.
84 Phlebitis of Deep Dorsal Vein of Penis. E. N. Turkus, New York.—p. 837.
85 Case of Diverticulitis of Cecum. W. R. Jackson, Mobile, Ala.—p. 838.

Oklahoma State Medical Association Journal, Muskogee

November, X, No. 11

86 Metastases. S. H. Landrum, Altus.—p. 421.
87 Women as Insurance Risks. J. S. Hartford, Oklahoma City.—p. 424.
88 Double Undescended Testicles; Report of Case. F. M. Sanger, Oklahoma City.—p. 427.
89 Simple Cystoscope in Diagnosis. H. Reed, Oklahoma City.—p. 429.
90 Muscle Training in Infantile Paralysis. D. J. Holland, Oklahoma City.—p. 431.
91 Acute Intestinal Obstruction. F. L. Carson, Shawnee.—p. 433.
92 Diagnosis and Treatment of Ectopic Gestation. J. H. White, Muskogee.—p. 435.

Ophthalmic Record, Chicago

November, XXVI, No. 11

93 Tendon Transplantation of Eye Muscles. H. W. Woodruff, Joliet.—p. 545.
94 Antityphoid Inoculations and Ocular Lesions. F. P. Calhoun, Atlanta, Ga.—p. 553.
95 Safety First in Cataract Operation. R. W. Perry, Seattle.—p. 555.
96 Unusual Case of Electric Ophthalmia. D. E. Compere, Dallas, Texas.—p. 558.
97 Extensive Plastic Ectropion Operation with Pedicled Flap. F. Allport, Chicago.—p. 559.
98 Protective Eye Shield. J. M. Patton, Omaha.—p. 561.
99 Case of Reattachment of Retina—Trephine Operation. E. M. Blake, New Haven, Conn.—p. 562.
100 Interstitial Keratitis with Special Reference to End Result. G. S. Derby, Boston.—p. 563.

Philippine Journal of Science, Manila

May, XII, Sec. B, No. 3

101 Varying Morphology of Bacillus Leprae and Routine Microscopic Examination of Nasal Mucus in Lepers. J. A. Johnston, Manila.—p. 115.
102 Amebic Abscess of Liver Among Filipinos. R. Abriol.—p. 121.
103 Two Cases of Balantidial Colitis. C. H. Manlove.—p. 149.

Rhode Island Medical Journal, Providence

November, I, No. 11

104 Stiff and Painful Shoulder; Report of Cases. R. Hammond, Providence.—p. 223.
105 Exophthalmic Goiter; Report of Cases. C. A. McDonald, Providence.—p. 227.
106 Percy Operation for Inoperable Carcinoma of Uterus and Vagina. D. J. Bristol, Jr., Boston.—p. 230.

Surgery, Gynecology and Obstetrics, Chicago

November, XXV, No. 5

107 *Restoration of Gastro-Intestinal Continuity by Means of Anticolic Gastrojejunostomy Following Partial Gastrectomy for Cancer of Pyloric End of Stomach. D. C. Balfour, Rochester, Minn.—p. 473.
108 Case of Section of Duodenum. P. Escudero and R. E. Pasman, Buenos Aires.—p. 477.
109 Some Causes of Occasional Failure in Operative Treatment of Chronic Gastric and Duodenal Ulcers. G. Woolsey, New York.—p. 481.
110 Duodenal Diverticula; Report of Case Associated with Duodenal Ulcer. H. P. Ritchie and G. L. McWhorter, St. Paul, Minn.—p. 485.
111 Tuberculosis of Stomach; Report of Case of Multiple Tuberculous Ulcers: Bibliography. A. C. Broders, Rochcester, Minn.—p. 490.
112 Stenosis of Gastro-Enterostomy Stoma, Simulating Recurrence of Carcinoma of Stomach; Report of Two Cases. R. Lewisohn, New York.—p. 505.
113 Sterilization and Closure of Suppurating Fractures. M. Guillot and H. Woimant.—p. 507.
114 Suction Bulb Action of Gallbladder. A. Werelius, Chicago.—p. 520.
115 *End-Results of Nephrectomy for Renal Tuberculosis. W. E. Lower, and T. P. Shupe, Cleveland.—p. 522.
116 Ligature of Innominate Artery for Cure of Subclavian Aneurysm. P. F. Morf, Chicago.—p. 526.
117 Exploratory Laparotomy; Its Use and Misuse. C. H. Parkes, Chicago.—p. 528.
118 Congenital Absence of Uterus and Vagina; Report of Six Cases. E. Novak, Baltimore.—p. 532.
119 Principles Governing Spontaneous Repair and Operative Closure of Vesicovaginal Fistula. R. T. Frank, New York.—p. 538.
120 Surgical Significance of Cysticoduodenal and Cysticocolic Ligaments. W. Van Hook, Chicago.—p. 551.
121 Wire Banding for Fractures. F. J. Cotton and J. Duff, Jr., Boston.—p. 557.
122 Treatment of Burns and Granulating Surfaces with Paraffin Film Preparations. E. B. Haworth, Pittsburgh.—p. 558.
123 *Preliminary Report on Simultaneous Use of Indigocarmin and Phenolsulphonephthalein Tests in Surgical Diseases of Kidney. A. Peterson, Los Angeles.—p. 561.
124 Rare Developmental Anomaly (Constriction) of Rectum, with Description of Operative Technic Employed for Its Correction. M. Rabinovitz, New York.—p. 565.

107. **Restoration of Gastro-Intestinal Continuity.**—In the method described by Balfour the resection is carried out in the ordinary way with especial attention to such important points as the wide removal of gland-bearing tissue, the avoidance of injury to the middle colic blood supply of the transverse colon, the resection made well beyond the cancer limits. the cauterization of all cut mucous surfaces to prevent cancer cell transplantation, and the secure inversion and burial of the duodenal stump. The first loop of jejunum is procured and a point about 14 to 18 inches from the duodenojejunal

angle is marked. The jejunum is then carried up in front of the transverse colon and omentum and a segment of suitable size is chosen at the point already marked. This section of jejunum is directed so that the proximal end of the loop will be approximated to the lesser curvature of the stomach. A series of interrupted silk sutures in the serosa is used for the first line posteriorly, beginning at the greater curvature. All these sutures are placed before any are tied, and the ends of the top and bottom sutures may be conveniently left as guides. The first suture line is about one-half inch below the clamp on the cut end of the stomach, and on the side of the jejunum about three-fourths inch from the summit of the loop. The jejunum is now incised and the crushing clamp removed from the stomach. Any actively bleeding vessels are ligated. The posterior row of the anastomosis uniting the posterior wall of the stomach to the inner cut edge of the jejunum is of chromic catgut. The stitches on the gastric side should be taken after the edge which has been crushed by the clamp has been trimmed with the scissors. A second row of finer catgut may be used to advantage in the posterior line. The first chromic catgut suture is continued in front in the usual way to complete the closure. An interrupted silk suture line similar to that used posteriorly is placed anteriorly, particular care being taken to reinforce the angle of anastomosis at the lesser curvature. A few interrupted silk sutures are placed where necessary further to protect the anterior suture line and the suture at the lesser curvature, the stump of gastrohepatic omentum which contains the ligated gastric artery being utilized as a support to the gastrojejunal angle at this point.

115. **Nephrectomy for Renal Tuberculosis.**—This paper is based on a study of eighty-seven consecutive nephrectomies for tuberculosis of the kidney. Among these cases there were two deaths within four weeks after the operation and before the patients left the hospital. The cause of the immediate mortality in the first case was probably shock. The second patient lived three weeks after operation, necropsy revealing the fact that the remaining kidney was decidedly tuberculous. Of the cases showing a later mortality, two died of general tuberculous peritonitis, four of pulmonary tuberculosis, while the cause of death in the remaining four is not known. The longest interval between operation and death was seven years, this patient dying of pulmonary tuberculosis at the age of 37. Forty-five patients replied to letters asking for present condition. In 48 per cent. of the cases with painful and frequent urination before operation some bladder symptoms persisted, abnormally frequent urination being the most common. The history of each of these cases showed that bladder trouble had extended over a long period prior to operation. Of the 9 per cent. who reported no definite improvement in the bladder symptoms, each one had pronounced bladder involvement at the time of operation. Twenty per cent. reported that they were in perfect health and all the rest that they were greatly improved. One man, operated on eight years before, reported himself as entirely cured although his history showed that for three years previous to operation he had complained of frequent urination, a symptom which persisted for ten months after the nephrectomy. Pain in the back of a colicky nature was reported by twelve patients, while twenty-five reported pain of varying degrees in the back, side, or hip. Of the entire series forty-four had hematuria. All still had pyuria.

123. **Indigocarmin and Phenolsulphonephthalein Tests.**—Peterson shows that when indigocarmin and phenolsulphonephthalein are excreted simultaneously, the addition of sodium hydrate eliminates the color of the indigocarmin and brings out that of the phenolsulphonephthalein. Phenolsulphonephthalein is excreted by the kidneys in the same amount whether used alone or simultaneously with indigocarmin. The presence of indigocarmin does not interfere with the microscopic study of the specimen of urine. The growth of bacteria is not retarded by the presence of this dye in the culture. Five c.c. of a saturated solution of indigocarmin forms a suitable and safe dose for intravenous administration. A quantitative colorimetric estimation of indigocarmin can be carried out.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

October 20, II, No. 2964

1 *Treatment of Infected, Especially War Wounds. R. Morison.—p. 503.
2 *Report on Wound Treatment by Brilliant Green Paste. A. R. Short, J. S. Arkle and C. King.—p. 506.
3 *Use of Liquid Petrolatum in Treatment of War Wounds. H. M. W. Gray.—p. 509.
4 Reinfection in Syphilis; Observations on Twenty-Eight Cases. C. F. White.—p. 509.
5 *Medicinal Treatment of Gonorrhea. H. C. Donald and A. M. Davidson.—p. 512.
6 Operations on Nasal Sinuses Carried Out Through Temporary Opening in Septum (Transseptal). N. Patterson.—p. 513.
7 Dosage in Therapeutic Administration of Thyroid Gland Substance. A. E. Carver.—p. 515.
8 Case of Contracted Pelvis; Cesarean Section Thrice. A. Crook.—p. 515.

1. **Treatment of Infected War Wounds.**—Summary of Morison's technic: Under an anesthetic, usually open ether, cover the wound with gauze wrung out of 1 to 20 phenol and clean the skin and the surrounding area with the same lotion. Open the wound freely and, if possible, sufficiently to permit of inspection of its cavity. A guide—a finger is the best if the size of the wound permits of it, and if not a thick probe—should be introduced to the bottom of the wound so as to give a good exposure. In doing this special regard must be paid to nerve trunks and muscular branches of nerves, since the division of blood vessels, excepting the largest and of muscles of themselves does little harm as compared with that of the disability following nerve damage. Cleanse the cavity with dry sterile gauze mops, Volkmann's spoon, etc., and remove all foreign bodies. Mop the surrounding skin and the wound cavity with methylated spirit and dry it. Fill up the whole wound with a bismuth, iodoform, paraffin paste, rub it well in with dry gauze. Then remove all excess, leaving only a thin covering over the wounded surface. Dress the wound with sterile gauze and cover all with an absorbent pad, which is held in position by sticking plaster and a bandage. This dressing requires no change for days or weeks if the patient is free from pain and constitutional disturbance. Should, however, discharge come through, the stained part must be soaked in spirit and a gauze dressing wrung out of the same applied as a further covering. Redressing is very simply done. After removal of the old dressings the wound is covered with a dossil of wool soaked in spirit, and the sticky dirty looking discharge is wiped off the surrounding skin until it is clean.

2. **Wound Treatment by Brilliant Green Paste.**—The authors report favorably on the use of the paste introduced by Hey, consisting of brilliant green, boric acid, French chalk and liquid petrolatum. It is said to be nonpoisonous and painless. In the great majority of cases it almost completely sterilizes the wound in three days, so that secondary suture can be performed even in large wounds complicated by bony injury. Small, completely excised wounds can be sutured primarily. The wound need only be dressed about once in four days. No permanent residue is left to interfere with immediate healing. By this method they have been able to obtain healing within a fortnight of cases of compound fracture even when complicated by joint injury, big buttock wounds and deep muscle wounds. They have excised an elbow joint full of pus, and obtained primary healing in a fortnight.

3. **Liquid Petrolatum in Treatment of Wounds.**—The results of observations carried out in several casualty clearing stations, Gray says, show that liquid petrolatum has, almost without exception, a very beneficial action on the walls of a wound and on the tissues adjacent to the wound. It prevents development of the symptoms of inflammation in these parts and will cause such symptoms to disappear rapidly if they are already present. The skin remains or becomes normal in appearance; redness and swelling do not develop or, if present, disappear. Pain is assuaged. Performance of function becomes easier, although, of course, this is frequently restrained by therapeutic agencies and is therefore not evident.

Changes of dressings are comparatively painless. Liquid petrolatum is not antiseptic in the ordinary sense of the term. If a wound be "packed" with gauze wrung loosely out of the petrolatum, it is found that in two to four days the discharge in the wound swarms with organisms, although the surrounding parts are free from inflammation. The "wound" with the fluid part of its contents may be likened to a test tube containing nutritive medium in which organisms are thriving. In either case the addition of antiseptic will lessen or entirely inhibit the growth. If an antiseptic is dissolved or suspended in the liquid petrolatum with which the gauze pack is saturated, it is found that the wound remains or becomes sterile. Various antiseptics or mixtures of antiseptics have been used, with good effects in all cases, although these effects vary, possibly owing to selective effect of the particular antiseptic against the particular organism or to tolerance acquired by the organisms for the antiseptic employed against them. Those chiefly used up to the present are flavine, brilliant green, boric acid and iodoform. It is rather difficult to justify preference for any one. A combination seems desirable.

5. **Medicinal Treatment of Gonorrhea.**—Donald and Davidson claim that medicinal treatment of gonorrhea from a clinical and statistical point of view undoubtedly does not help but retards the cure of gonorrhea, and tends to produce chronicity.

Journal of Laryngology, Rhinology and Otology, London

October, XXXII, No. 10

9 Lateral Sinus Disease; Report of Three Cases. A. Ryland.—p. 305.
10 Some New Points in Anatomy of Nasal Septum, and Their Surgical Significance. J. L. Aymard.—p. 308.

Journal of Tropical Medicine and Hygiene, London

October 15, XX, No. 20

11 *Case of Espundia (Naso-Oral Leishmaniasis) and Three Cases of Kala-Azar in Sudan Treated by Intravenous Injection of Antimonium Tartaratum. J. B., Christopherson.—p. 229.
12 Generalized Vaccinia in Sudan Natives. A. J. Chalmers and R. G. Archibald.—p. 236.

11. **Espundia and Kala-Azar Treated by Intravenous Injection of Antimonium Tartaratum.**—Considering the difficulties which may be encountered in the operation of introducing the drug into the lumen of the vein in kala-azar patients, Christopherson advises that the smaller the quantity of fluid and, therefore, the smaller the syringe and needle required, the better, and therefore quantities which can be introduced with a hypodermic syringe with a rather large hypodermic needle are the most convenient. Stronger solutions than one-half grain to 20 minims of distilled water are liable to be irritating (1 grain tartar emetic to 40 minims sterile normal salt solution, or distilled water, can conveniently be made up and kept in a flask). As routine treatment 20 minims of such a solution may be injected, and if this is well stood, may be increased to 40 minims on the following day, and then every other day and increase of 10 minims each dose till 2 grains is reached. This for a couple of months, and then once a week for some time after. For practical purposes 3 grains may be taken as the maximum dose. The most noticeable clinical sign is the change in the native patient's skin from the dark, dirty, dry appearance characteristic of kala-azar patients, as if they had been washed with dirty water, to the normal, moist, sleek, supple condition. Increase in body weight is very noticeable. Temperature falling by lysis commences to fall a day or two after commencing injections, and reaches and remains at normal in about a fortnight. Christopherson has had good results from the use of this drug.

Lancet, London

October 20, II, No. 4912

13 Relations of Tuberculosis to War Conditions. A. Newsholme.—p. 591.
14 *Sterilization by Dakin's Solution and Occurrence of Secondary Hemorrhage. E. F. Bashford.—p. 595.
15 Retraction of Blood Clots. W. d'Este Emery.—p. 597.
16 Gastric Atony and War Neurasthenia. J. C. McClure.—p. 600.
17 Diathermy for Treatment of Certain Local Abnormalities of Skin. L. W. Bathurst.—p. 602.
18 *Relation of Case of Cerebrospinal Fever to Positive Contacts. P. Fildes and S. L. Baker.—p. 602.
19 Cardiac Digital Percussion. W. Gordon and C. E. W. Bell.—p. 603.
20 *Nervous Cretinism. F. G. Crookshank.—p. 604.
21 Occurrence of "Blue Pus" in septic Wounds. T. H. Kellock and C. R. Harrison.—p. 605.
22 Case of Strangulated Femoral Hernia. T. E. Coulson.—p. 606.
23 Case of Extra-Uterine Gestation. E. A. Constable.—p. 607.

14. **Sterilization by Dakin's Solution and Occurrence of Secondary Hemorrhage.**—It would appear from Bashford's experiments as if the local action of Dakin's solution was held in check by an efficient circulation either by providing protein containing fluid or by carrying off and rendering harmless the hypochlorites as they approach living tissues without entering into combination with them, that is, killing them.

18. **Relation of Cerebrospinal Fever to Positive Contacts.**—Fildes and Baker maintain that the case of cerebrospinal fever is not specially responsible for the spread of the disease and is infected by one of the positive contacts. They look on the patient as one of the rare individuals who cannot confine the meningococci to the nasopharynx and merely "carry." Their results also appear to indicate that in such a case the cocci pass very rapidly to the central nervous system after gaining access to the nasopharynx.

20. **Nervous Cretinism.**—The nervous symptoms that are associated in the child with atypical athyreosis, Crookshank says, are to be recognized as forming degrees of the state described by McCarrison as "nervous cretinism." "Nervous cretinism" occurs in England, possibly endemically, but certainly, if not sporadically, at any rate without obvious endemic associations. In almost every case that Crookshank has seen which appears to deserve the appellation of "nervous cretinism," there has been evidence of dysthyreosis in the mother or other members of her family. The earliest manifestations of mild "nervous cretinism" are generally regarded as tetany, and occur toward the end of the second year of life (or a little later), when the child has well learned to walk and talk. Following the tetany—or stage of remittent spasm—there may ensue a stage of weakness, with tottering gait, and a more persistent spasm that passes into a condition not to be distinguished from congenital spastic diplegia or Little's disease of moderate degree. In the more severe cases mental defect is obvious almost from very early days, and the early appearance of spasm with nystagmus leads to the confident diagnosis of congenital spastic diplegia.

The relation of these cases to the group of mild nervous cretinism is shown by the familial dysthyreosis and by the at least partial response to thyroid medication; sometimes by familial incidence. The mild cases whose nervous symptoms first attract notice toward the end of the second year or thereabouts are not cretins in the ordinary sense of the term, and frequently in the beginning are docile and pleasing children. They are sometimes, however, broad-headed and their hypothyroidal quality may be manifest in the arrangement of their forehead and hair and eyebrows, and in the waxen puffiness of their skin. No claim is made for the cure of established cases of Little's disease or congenital spastic palsy by thyroid tablets; but certain cases of young children, diagnosed by specially competent physicians as congenital spastic diplegia with amentia, have definitely responded to treatment by thyroid; while cases of tetany, spasm, weak legs and so forth, recognized as corresponding to McCarrison's milder cases of nervous cretinism, have become quite cured while taking the same substance. The effects, on similar cases, of parathyroid medication, Crookshank has not yet noted.

Archives des Maladies du Cœur, etc., Paris

September, X, No. 9, pp. 401-448

24 *Athlete's Heart. J. Heitz.—p. 401.
25 *The Soldiers with Disordered Action of the Heart. L. Gallavardin.—p. 408.

24. **Athlete's Heart.**—In Heitz' case the athletic proprietor of a physical culture studio had a very large heart of the type described by Shumacker and Middleton in The Journal, April 11, 1914, as the effect of immoderate athletic sports, and

by Tørgersen in ski jumpers—a hypertrophic dilatation presumably from professional strain. But roentgenoscopy showed the aorta likewise dilated, and the Wassermann reaction was positive. The man had never had malaria or other severe infection or drinking habits; there had been a single dubious chancre ten years before but no other pathologic manifestations at any time until recently there had been some symptoms from the hypertrophied heart. This case and others cited by Heitz confirm the view that athletic training is harmless only when the myocardium has not already been damaged by some infection or intoxication. On account of the paucity of the information available in this line, strict supervision is necessary for athletes training for competitive events. It is not enough to count the pulse, measure the blood pressure and auscultate the heart, the subjective reactions must be investigated, and the thorax examined with the roentgen rays. The training should be stopped at once in case of indisposition. Those with a history of malaria or syphilis should be warned to give up training altogether when the cardiovascular apparatus seems to have been touched by the disease.

25. **The "Tachycardiacs."**—Gallavardin reproduces with comment most of the report recently published by the British Medical Research Committee on the soldiers returned as cases of "disordered action of the heart" or "valvular disease." In 150 cases in his own experience, the condition was serious in only two, the pulse from 110 to 150 and the blood pressure 170 to 180 mm. mercury; in all the rest no organic cause for the tachycardia could be discovered. In the grave forms the pulse ranged about 100, the pressure 160 mm., but even climbing one flight of stairs sends the pulse up to 170 or 180, and it does not subside to the former figure for five minutes or more. Sedentary service has to be found for the men in this class. Below the moderate cases, in the mild group, the pulse keeps between 60 and 80, occasionally reaching 90, with pressure of 140 or 145 mm. It may run up to 150 but subsides to the former figure in a few seconds after reclining. Men in this group can be set to driving artillery wagons and the like, to spare them from wearing a knapsack and long marching.

Gallavardin comments on the large numbers of these "tachycardiacs" we are encountering when before the war we had scarcely a suspicion of this vast field of nonorganic cardiac pathology, this tribe of men with palpitations, shortness of breath, and disordered action of the heart with no organic lesion to be found. He emphasizes that the war did not create this category of "cardiacs"; it merely has revealed them. These "cardiacs" existed just the same before the war, but they never felt the need for consulting a physician on this account, and merely sought light occupations behind counters, etc. The profession at large knew nothing of this army of nonorganic tachycardiacs, and the army physicians seem to have paid no heed to these men who were constantly dropping out of long marches and excused from carrying the knapsack. Those that did not drift into sedentary services were discharged from the army labeled endocarditis or hypertrophy of the heart. Consequently the profession during the first year of the war was amazed and skeptical at the wholesale dismissals from the army for endocarditis, tachycardia, etc., when the most skilful auscultation revealed nothing wrong. But they had to yield to the evidence, and recognize that there is a whole series of physical disabilities in this line—at least partial disability—which is at least as important as that due to organic heart disease. Infectious diseases have a great influence on the development, or rather the aggravation of these tachycardia neuroses, but a constitutional nervous predisposition is plainly evident in most of the cases. The overexcitability of the sympathetic system is not confined to the heart innervation.

He compares his 150 cases with those analyzed by the British committee, saying that time alone will tell the future of these cases. Aside from the graver cases, he does not think there is serious danger for the heart. Their rapid heart beat makes them poor runners, just as their emotional instability and trembling make them poor marksmen. Their dyspnea from exertion is never accompanied by hypertrophy or dilatation of the heart. The probabilities are that this overexcitability of the nervous system will calm down as they grow older. He queries whether this special circulatory excitability may not predispose to vasomotor paralysis in the course of various infectious diseases, and thus be responsible for the fatal outcome. The tachycardia is regularly paired with hypertension, and this may be an element of danger, setting up stable processes of hypertension. Still further peril lies in the possibility of actual organic disease developing in a heart overworked by this tachycardia. He adds that in 500 young men, all free from organic valvular disease and tuberculosis, the pulse rate during the revision examination was from 50 to 75 in 2.6 per cent.; from 75 to 100 in 25.6; 100 to 125 in 36.6; 125 to 150 in 27.2, and from 150 to 175 in 8 per cent. All of course were emotionally excited, but the figures illustrate the wide individual variation.

Archives Mens. d'Obstétrique et de Gynécologie, Paris

July-September, VI, No. 7-9, pp. 193-272

26 Combined Rupture and Inversion of the Uterus. A. Brindeau.—p. 195.
27 *Elderly Primiparae. B. J. Kouwer (Utrecht).—p. 207.
28 Postpartum Eclampsia. E. Hauch (Copenhagen).—p. 224.

27. **Elderly Primiparas.**—Kouwer tabulates the findings in respect to 5,300 primiparas which demonstrate that the average duration of labor is from 16.6 to 17.1 hours in young primiparas, but jumps at once to 21.6 up to 25.9 hours in the elderly primiparas. The frequency of forceps deliveries increases in the same proportion. This longer duration of labor is probably, he says, the consequence of the functional enfeeblement of all the organs, including the endocrine glands which act on the uterus. This enfeeblement he ascribes to the delay in the physiologic development of the genital organs and endocrine glands, as the interval has been so long between the onset of menstruation and the completion of the cycle of functional development of the uterus. It is not necessary to assume any histologic changes in the soft parts; the trouble is merely inertia. But the amazing feature of his tabulation is that the dividing line-marking off the elderly primiparas is at the age of 24. Below this, labor is physiologic; at 24 the duration averaged 21.6 hours, instead of 15.9 at 22, among 1,831 primiparas in his service. A similar dividing line of the "elderly" under 28 was evident in 3,460 primiparas at the polyclinic although the records there are not kept with equal care. An interval of six or seven years between the first menstruation and the first pregnancy ranks the woman among the "elderly."

Bulletin de l'Académie de Médecine, Paris

September 25, LXXVIII, No. 37, pp. 299-330

29 The Declining Birth Rate. Pinard and others.—p. 303. Continuation.
30 *Heart Accidents from Asphyxiating Gases. C. Fiessinger.—p. 322.
31 *Rubber Prosthesis for the Humerus. P. Delbet and Girode.—p. 328.
32 Therapeutic Action of Colloidal Sulphur. A. Cawadias.—p. 329.

30. **Heart Disturbance from Asphyxiating Gases.**—Fiessinger calls attention to the action on the heart of the new asphyxiating gases. They seem to be more complex than the chlorin gases which act on the respiratory tract. . Their effects are more like those observed in the laboratories studying the fixation of nitrogen or in the manufacture of nitric acid. The industrial intoxication is slow and prolonged, while the intoxication from the drift gas is sudden and fulminating, but the symptoms in both are of the same cyanogen compounds type, syncopes with slowing of the pulse. This syncopal tendency is manifested at the slightest movement for months. One officer while on duty at an advanced post became intoxicated with this type of gas and was accused of simulation during the following months until the nature of his disturbances was differentiated.

With this sudden intoxication the man notices merely a fruity, apple-like odor in the air; then suddenly he feels benumbed, his limbs give way, and he feels a burning from his throat down to the pit of the stomach. Then come vomiting and drooling; increasing vertigo, the extremities icy; and unconsciousness follows, sometimes for several hours.

The pulse next day was retarded in the cases Fiessinger has seen, dropping at times to 25 or 30, but others have noted acceleration up to 100. The heart beat is weak and seems remote to the ear, but regular except occasionally a dull sound suggesting an auricular contraction not transmitted to the ventricle. The men have to lie horizontal, a syncope coming on at the least attempt to sit up. After from three to six months the pulse returns to its normal rate and, except for extreme weakness, the man can resume his ordinary life. Two soldiers presented a somewhat less grave clinical picture than this, and after their convalescence furlough had been extended one month they were almost entirely cured.

The symptoms in these cases gave the clue to the intoxication of a chemist experimenting in an industrial establishment with fixation of nitrogen from the air on aluminum, calcium and other bases, at a temperature of 1,850 C. In this case there was no appreciable improvement for a year, during which he was compelled to retain a horizontal position. At times his pulse dropped to 12; even when it was 40 the syncope returned when he attempted to sit up. With mild poisoning there are merely dizziness and slowing of the pulse. This is the cause of intoxication from automobile gases. The carbon monoxid cannot be incriminated as the amount is too small; the products of incomplete combustion of hydrocarbons seem to be exclusively involved. They act on the medulla and fatal cases are known in touring cars. Fiessinger has had several mild cases of the kind among chauffeurs; at first he ascribed the symptoms to stomach trouble and nicotine. He advises treatment of the acute intoxication with venesection and injections of etherocamphorated oil. Later the stomach should be treated with bismuth if there is hypersthenia, and the heart disturbances, when accompanied by syncopes, with theobromin and small doses of caffein. Small doses of strychnin may also render service, and bed rest should be maintained for months. Heart tonics, such as digitalis and strophanthus, seem to aggravate the condition. Some have reported benefit under epinephrin, but Fiessinger has had only uncertain results with it. In the discussion that followed, Pouchet remarked that the waste gases from automotors must be reckoned with now as one of the factors that detract from the healthfulness of city life.

31. **Rubber Artificial Humerus.**—Delbet and Girode bridged the long gap after resection of the humerus for sarcoma with a rod of hard rubber 15 cm. long. At the head end it was 5 cm. in diameter and only 21 mm. in the shaft. This endoprosthesis was introduced ten days after removal of the tumor. The piece proved a little too short and it had to be fastened to the lower stump with a wire instead of fitting into it as intended. The artificial humerus seems to be answering every purpose to date, two and a half months later, the arm rendering good service.

Journal de Radiologie et d'Electrologie, Paris

July-August, II, No. 10, pp. 593-640

33 Technic for Extracting Projectiles in the Skull or Spine. C. Villandre.—p. 593.
34 *Radiodiagnosis of Horseshoe Kidney. N. Voorhoeve (Amsterdam).—p. 599.
35 Radiologic Diagnosis of Fracture of the Spine in Men *Buried* under Débris. G. Détré.—p. 603.
36 The Electric Psychic Reflex. A. Zimmern and B. Logre.—p. 610.
37 Importance of Early Roentgen Diagnosis of Tibiotarsal Dislocation. Bec and Hadengue.—p. 620.
38 Technic for Locating Projectiles in the Tissues. A. Chéron.—p. 621.

34. **Radiodiagnosis of Horseshoe Kidney.**—Partial fusion of the two kidneys should be suspected when the inner margin of the kidney is parallel to the spine and the interval between is abnormally narrow. The lower margin on both sides is also abnormally low, and the kidneys cannot be moved to and fro although axial movement may be possible. The lower poles of the horseshoe kidney are necessarily closer to the abdominal wall than the spine, while with normal kidneys they are back of the anterior plane of the vertebrae. This aids further in differentiation as there is an apparent displacement of the lower margin of the kidney with ventrodorsal roentgenoscopy, different from what is observed with normal kidneys.

Paris Médical

September 29, VII, No. 39, pp. 257-272

39 *Treatment of Wounds of the Knee at the Advanced Operating Stations. A. Schwartz.—p. 257.
40 *The Circulating and the Stationary Blood. Prével.—p. 259.
41 Work in Rehabilitating the Maimed. P. Kouindjy.—p. 263.
42 War Wounds of the Kidney. Patel.—p. 266.
43 *Capillary Drainage of the Spinal Cavity. R. A. Gutmann.—p. 269.
44 Intravenous Injections of Quinin in Treatment of Malarial Cachexia. P. Lafosse.—p. 270.

39. **War Wounds of the Knee.**—Schwartz protests against the frequent practice of incising the capsule and severing the patellar ligament unless conditions absolutely compel this. It is often possible to clear out the wound from the side of the knee, leaving the patellar ligament intact. This should be the routine practice when the bone has not been fractured. With shattering of the bone, resection is inevitable and it takes a long time for the lesion to heal with solid consolidation in a good position, and the man will find it painful and tedious. However, a solid, straight leg with good ankle joint, is far preferable to all the artificial legs in the world. Hence, even when the knee has been badly shattered, he makes every effort to save it from amputation.

40. **The Circulating and Stationary Mass of the Blood.**—Prével argues that the influence of gravity on the circulation of the blood has not been paid the attention it deserves. Even in normal conditions the mass of the blood must be regarded as in two parts, one actively circulating and the other stagnating in peripheral vessels. The actively circulating mass of the blood is all that is evident in the erect position. Under the influence of gravity, as the subject stands still, the blood stagnates, especially in the peripheral vessels. Prével describes means by which we can estimate the proportional bulk of the orthostatic circulating and the stagnant blood. General massage on the reclining subject is probably the most effectual means for getting all the blood to circulate. The proportion of stagnating blood naturally increases with defective heart or vessel action. Determination of the proportion thus shut-off from the blood stream may afford valuable information in nervous shock after war wounds. His device for the purpose is a dial attached to the Pachon oscillometer.

43. **Capillary Drainage of the Spinal Cavity.**—Gutmann introduces into the spinal cavity six or seven silk threads, fitting them into the Potain needle with which the lumbar puncture has just been made. Once in the cavity, the free ends of the threads hold them from slipping back as the needle is withdrawn. The indications for this effectual capillary drainage are met with in septic meningitis, and he urges others to give it a trial.

Presse Médicale, Paris

September 20, XXV, No. 52, pp. 537-544

45 *Chronic Intestinal Trouble and the Military Service. C. Laubry and L. Marre.—p. 537.
46 *The Plantar Reflexes. L. Rimbaud.—p. 539.
47 Graft from Tibia to Close Defect in Skull. C. Villandre.—p. 540.
48 The Fifth Cusp on Molar Teeth not necessarily a Sign of Syphilis M. Mozer and C. Chenet.—p. 541.
49 Solutions of Quinin for Injection. R. Dalimier.—p. 541.

45. **Chronic Enteritis and Military Service.**—Laubry and Marre comment on the difficulty of determining the fitness for service of men with bowel trouble. The general condition is the chief element in the prognosis; the weight and the temperature are more important than the laboratory findings. The tendency is to discharge from the army the men with chronic enteritis, but many of the men encountered in the hospitals in the home zone are declared cured about ten times a year. When there is merely colitis with constipation, and the general condition is good, the men should be kept under observation or sent back at once to active service. If the general condition is precarious or is growing worse, a temporary relief from army duties is indicated. If under surveillance and proper measures improvement does not follow and a special diet is required, the men should be temporarily relieved from active duty or be assigned to light duty. They urge revision of the decision at the end of three months, but insist that as much care and attention to detail should be applied at the revision as at the first examination.

A compulsory sojourn in a specialist hospital service, giving opportunity for thorough examination, should precede the final revision. This is the only way to avoid the numerous vexatious and expensive blunders made in the past.

46. **The Plantar Reflexes with War Wounds.**—Rimbaud seeks to systematize and estimate the importance of the reflexes induced by tapping the sole. The plantar flexion of the whole foot is identical with that of the Achilles reflex and has the same mechanism and significance. In hundreds of tests he always found this reflex abolished when the Achilles reflex was gone. Besides this tendon reflex, there is a muscle reflex, the flexion of the toes, which corresponds in the same way to the reflex induced by percussion of the tibialis anticus. Both of these reflexes give information in regard to the condition of the sciatic nerve, and especially of its popliteal branch. The disappearance of the flexion of the foot is an early sign of some lesion in the sciatic nerve, earlier even than loss of the Achilles reflex, as it is more sensitive than the latter. The toe reflex is abolished only when there are grave lesions or disease in the main sciatic or popliteal nerve, practically blocking the nerve. The loss of any muscle reflex indicates a grave lesion. With some slight lesion of the sciatic nerve, the flexion of the foot reflex may be abolished while the toe flexion is exaggerated. This plantar dissociation is thus a reliable sign of some lesion of the sciatic nerve but also that it is mild. It is thus an important guide in treatment of wounds of the thigh, etc.

Progrès Médical, Paris

September 8, XXXII, No. 36, pp. 295-302

50 *Diabetic Polyneuritis. A. Pitres and L. Marchand.—p. 295.
51 **Wire Ring for Shattered Bones.* M. Sénéchal.—*p.* 297.

September 15, No. 37, pp. 303-310

52 Present Status of Treatment of War Wounds. A. Demmler.—p. 303.
53 Extraction of Projectiles under Screen Control. R. Didier.—p. 306.

50. **Diabetic Polyneuritis.**—Pitres and Marchand relate that, judging from their experience, diabetic polyneuritis develops just like ordinary polyneuritis of toxi-infectious origin. The prognosis is generally favorable. The toxic products developed in the course of the diabetes act on the nerves like any other toxic products of similar virulence. In a case described at length, ecthyma and gingivitis were the first warning symptoms of the disease. Then sugar was discovered in the urine and later the polyneuritis developed. It assumed a quadriplegic form, but it subsided as the glycosuria was brought under control. The patient was a man of 47; the painful hyperesthesia and paroxysms of pain had been most pronounced in the legs, as also the paralysis.

51. **Wire Ring for Shattered Bone.**—Sénéchal ties a wire around the sequesters and bone to bring the pieces into their proper relations, and relates that this wire *cerclage* has been applied in sixty-six cases to date. Sometimes he uses two or three of the wire rings. The history of some typical cases, with the roentgenograms, shows the advantages of this method of bridging the gap. He does not try to reconstitute the bone shaft, but bridges the gap with the bunched sequesters. The aim is to have the sequesters serve as a kind of splint to hold the parts in place. The plaster cast is fitted on at once, while the patient is still under the influence of the anesthetic. He always uses an open cast with high metal loops spanning the gap left at the site of the wound.

Correspondenz-Blatt für Schweizer Aerzte, Basel

September 22, XLVII, No. 38, pp. 1217-1248

54 *Results of Suprapubic *Prostatectomy.* F. Suter.—p. 1220.
55 Bacillary Dysentery in Switzerland. Hunziker.—p. 1226.
56 *Factitious or Real Disease. A. Haslebacher.—p. *1232.*

54. **Suprapubic Prostatectomy.**—Suter states that in his seventy-five operative cases of suprapubic prostatectomy, one patient succumbed to embolism, two to insufficiency of the kidneys and two to heart disease. The other patients all recovered and the results were excellent, aside from this mortality of 6.7 per cent. Even with the best of technics, the operation is not free from danger, but he advocates it for all just entering on regular catheter life. Especially for the younger *prostatikers,* he says, this technic is preferable as the prognosis is better in the young, while they will have more years in which to enjoy their release from prostate trouble.

56. **Differentiation of True from Factitious Painful Affections.**—Haslebacher comments on the common neglect of digital palpation in cases of alleged muscular, nervous and traumatic lesions. Palpation is usually most instructive in the very cases in which other methods of exploration have the least to show. We should never neglect an opportunity to exercise and perfect the "eyes in our fingertips." When a war wound or other injury does not heal in the usual time with restored function, some complication is responsible, irritation of nerves, development of adhesions, spastic hypertony, stagnation of blood in certain veins, or exudates or deposits in joints. Whenever a nerve is suffering at any point in its course from any of the above troubles, the circulation in the nerve is interfered with, and there may be pain, anesthesia or other symptoms at or near or remote from this point, which is always more or less tender. He seeks the tender point by making spiral movements with pressure around the suspected point. When it is reached, the finger feels a slight contraction and the patient makes an uncontrollable expression of pain and the parts under the fingers may stiffen. As every one of these nerve points has its own symptoms, so every symptom can be followed to its nerve-point source. The most commonly involved nerve points are in the orbit, temple, mastoid process, in the neck at the trachea or thyroid, in the interspaces, the ileosacral region, the pelvis, the inside of the thigh, the knee and the malleoli. Anemia, gout, rheumatism and arteriosclerosis are the principal causal factors, aside from trauma, and discovery of these tender points confirms the reality of the disturbances complained of. This is the main field for physicotherapy, especially massage and heat. In chronic cases, a severe aggravation of the symptoms follows after a few days, usually in the second week. This aggravation is almost infallible testimony to the reality of the trouble. If it does not occur after energetic treatment for ten or fourteen days, we have good reason to suspect the truth of the patient's complaints, unless he is so debilitated that the organism cannot be aroused to fight the disease.

Gazzetta degli Ospedali e delle Cliniche, Milan

September 23, XXXVIII, No. 76, pp. 1025-1040

57 *Prophylactic Value of Vaccination* against Typhoid. M. Sammartano.—p. 1025.
58 Contamination of *Commercial Distilled* Water for Microscopy. L. Dozzi.—p. 1040.

Policlinico, Rome

September 30, XXIV, No. 40, pp. 1205-1232

59 *Bacteriologic Diagnosis and Serotherapy of Epidemic Cerebrospinal Meningitis. O. Paleani.—p. 1205.
60 Treatment of Tetanus. S. Puglisi.—p. 1210.
61 **The Ten Commandments with Fracture of the* Femur. B. Schiassi.—p. 1211.
62 Ascending Paralysis during Malta or Undulant Fever. F. d'Alessandro.—p. 1213.
63 Malaria in the Army. G. Apicella.—p. 1216.
64 Factitious Lesions of the Ears. A. F. Ratti.—p. 1217.

October, Medical Section No. 10, pp. 389-428

65 Modification of the Electrocardiogram under the Influence of Exertion. N. Pende.—p. 389. To be continued.
66 *The Oculocardiac Reflex. G. Fumarola and E. Mingazzini.—p. 404.
67 *Indicanemia. A. Fara.—p. 421. Commenced in No. 9, p. 385.

59. **Epidemic Meningitis.**—Paleani emphasizes the importance of making the serum from the strains of meningococci found in the cases during the epidemic. When the cerebrospinal fluid was found limpid and sterile, he took cultures to make the antiserum from the nasopharynx. For prophylactic purposes, the nasopharyngeal secretions were all that was necessary. There are liable to be numerous pseudomeningococci and parameningococci, but agglutination generally identifies them. The findings were positive in only thirty of the forty-three specimens of cerebrospinal fluid sent to him for examination during the last five months. In the other specimens pneumococci or tubercle or other bacilli were found, or else the case proved to be one of meningeal involvement in mumps, or embolic softening of the brain. True epidemic meningitis usually has more or less of a septicemic character

and he consequently administers the antiserum subcutaneously as well as intraspinally, and he advocates fairly large doses daily.

61. **Fracture of the Femur.**—Schiassi warns against extension with weights when the stumps are not exactly coaptated after simple fracture of the femur. Roentgenoscopy has shown that only approximately normal conditions are restored by this means. When a fracture with overlapping stumps has been reduced under general anesthesia, the plaster cast should include the foot and entire leg, the root of the other thigh and the whole of the pelvis. Roentgenoscopic control of the reduction is indispensable. If there is no suspicion of infection, this can be done while the patient is still on the operating table, before the cast is applied, examining the reduction from both the front or rear and the side. No antiseptic to date can arrest established infection in a fracture. The focus must be cleared out and drained, a counter opening made on the side opposite the wound. The leg should be immobilized but even an open plaster cast cannot be applied until the infection has become attenuated. He discusses further the technics suitable for the different varieties of fracture.

66. **The Oculocardiac Reflex.**—With a single exception, Fumarola's findings confirmed those of others in respect to the presence and significance of the oculocardiac reflex.

67. **Indicanemia.**—Fara reviews the literature on indicanemia and affirms that the evidence to date testifies that indicanemia is physiologic. It assumes pathogenic importance only when it is above the normal range. When speaking of it as a pathologic phenomenon it should be styled hyperindicanemia. In forty persons with various diseases and the healthy controls—all without azotemia—the indican content of the blood ranged from 0.32 to 1.6 mg., fluctuating besides with the diet. In one healthy subject it ran up from 0.64 to 1.28 mg. a few hours after eating 300 gm. of meat. The azotemia findings never fluctuated parallel. In thirty-two cases of nephritis without uremia, the indicanemia reached 1.67 mg., and in twenty-eight with uremia it reached 4.27 per thousand. The Obermayer technic is best for detection of indicanemia in the clinic, as it does not begin to give positive findings until the indican content is above the normal range, and thus it testifies to defective elimination by the kidneys.

Riforma Medica, Naples

September 29, XXXIII, No. 39, pp. 933-952

68 *Primary Prostatitis. R. Porcelli.—p. 933.
69 *Case of Aleukemic Lymphadenia Consecutive to Mumps. S. Fichera.—p. 936.
70 The Medical Students Serving in the Army. E. Maragliano.—p. 943.
71 Present Status of Rat-Bite Fever. G. Molinari.—p. 944.

68. **Primary Gonococcus Prostatitis.**—Porcelli's patient complained merely of a sensation of cold localized in the urethra its entire length, but nothing could be found to explain it, and he grew thin and neurasthenic. Closer examination revealed a chronic prostatitis, and gonococci were cultivated from the pus expressed. There was no history of gonorrheal urethritis, and there was much to suggest that the prostatitis was primary and had induced the sexual neurasthenia.

69. **Aleukemic Lymphadenia.**—The special feature of the case described was that the hypertrophy of lymphatic tissue first became apparent during convalescence from a mild case of mumps.

Revista de Medicina y Cirugia de la Havana

September 25, XXII, No. 18, pp. 477-504

72 Present Status of Radiotherapy in Dermatology. V. P. Castello.—p. 477.
73 Analysis of Potable Waters in Cuba. R. de Castro y Bachiller.—p. 487.

Semana Medica, Buenos Aires

August 2, XXIV, No. 31, pp. 117-148

74 Quackery at Buenos Aires. (Adivinacion.) A. d'Alessandro.—p. 117.
75 *Interposed Flap in Treatment of Ankylosis. E. M. Olivieri.—p. 127. Continuation.
76 Aneurysm of Mitral Valve in Man of 44. R. A. Bullrich.—p. 137.
77 Nationalization of Asistencia Publica. E. R. Coni.—p. 140.

75. **Operative Treatment of Ankylosis.**—Olivieri gives thirty-five illustrations of the technic and outcome of treatment of ankylosis by opening up the joint and separating the parts with a pedunculated flap of muscle or tendon tissue. The general principles are the same for all joints.

Siglo Medico, Madrid

September 22, LXIV, No. 3328, pp. 705-724

78 The Functioning of Kidneys Containing Calculi. A. P. Martin.—p. 706.
79 Action of Ether on Tubercle Bacilli in Sputum. M. J. Barilari.—p. 709.
80 The Lower Class Degenerate Criminal from the Psychologic Standpoint. (Los apaches.) A. Sanchez-Herrero.—p. 714.

Mitteilungen a. d. med. Fakultät der k. Univ., Tokyo

March, XVII, No. 2, pp. 187-287. German edition

81 *The Lipoid Products from Degeneration of Nerves. F. Shionoya.—p. 187.
82 *The Roser-Nélaton Line. I. Motoshima.—p. 269.

81. **Lipoid Products of Destructive Metabolism in Degenerating Nerves.**—This report of Shionoya's extensive experimental research in this line is accompanied with two colored plates showing the contrast staining in sixty-seven different specimens. In most of the experiments the nerves were crushed but in a few they were cut. The work was done on cats and dogs.

82. **Nélaton's Line and the Hip Joint.**—Motoshima remarks that many physicians trust to the line connecting the anterior superior iliac spine and the tuberosity of the ischium as the mariner trusts his compass. They assume that invariably the tip of the greater trochanter is crossed by this line when the longitudinal axis of the femur is held at a right angle to the line. When the trochanter extends above this line, pathologic conditions are assumed as infallibly responsible for this. Motoshima has been studying the anatomic relations between them in 114 persons and measurements on numerous cadavers. The minute details of all are tabulated. They show that the irregularity of the basal points renders uncertain any deductions therefrom, especially when there is a history of rachitis. The greater trochanter extends above the line in normal conditions when the shaft of the femur is at a right angle. As a guide to the region we can accept the line as crossing the point of the greater trochanter at the point where it can be most readily palpated.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

August 25, II, No. 8, pp. 671-750

83 *Do Animals Feel Pain? (Voor en tegen proeven op levende dieren.) G. van Rijnberk.—p. 671. Continuation.
84 Pharmacologic Study of Action of Optochin on Heart and Vessels. G. ten Doesschate and W. S. van Leeuwen.—p. 676.
85 Crystalloid Formation in the Retina. P. J. Waardenburg.—p. 690.
86 The Domain of Psychanalysis. G. J. Huet.—p. 700.
87 Recurring Intrameningeal Hemorrhages Simulating Meningitis in Apparently Healthy Young Physician. P. B. Westerhuis.—p. 702.

83. **Do Animals Feel Pain?**—The first part of van Rijnberk's study of this question was reviewed in these columns last week, page 1745. He here cites further examples, such as that if the tail or part of the body of a honey-sucking bee or male copulating shrimp or frog is cut off, the creature continues undisturbed to suck honey and the male does not release the female from his embrace. The twitching of the skin of a horse is a reflex action which occurs the same if the communication with the brain is shut off. He says further that veterinarians report that quite a considerable operation can be done on the large, herbivorous domestic animals while they are feeding and they may continue feeding without interruption. Dogs, cats and rabbits after severe operations in the laboratories are as lively and frolicsome as before so soon as the effect of the general anesthesia has passed off. He adds that dogs cannot be trained by the eyesight alone; there must always be some pleasurable or disagreeable experience connected with the act in which it is being trained. Even in man, he continues, the sensation of pain seems to be restricted to the outlying parts of the body. It is still a question whether sound organs in the thoracic and abdominal

cavities are sensitive to pain. "In short," he concludes, "the attempt to answer the question 'Do animals feel pain?'—which the layman answers glibly in the affirmative—is to step on a treacherous trapdoor which drops one into a hornets' nest of philosophy, psychology and biology."

Hospitalstidende, Copenhagen

September 5, LX, No. 36, pp. 861-884

88 *Gastric Cancer Simulating Malaria. C. Rovsing.—p. 861.

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The lack of symptoms of dyspepsia in the early stages in these cases is misleading. In Bühring's case (1889), there were no symptoms except those suggesting malaria to the very end; necropsy disclosed an ulcerating carcinoma and abscess in the frontal lobe. This was the only one of all the cases mentioned in which there was anything to suggest pyemia. If the fever is due to absorption of a toxin produced by the cancer, one would expect to find it continuous. More probably the toxic products generated in the stomach from the retention by the closed pylorus caused the fever when they reached a certain level. The vomiting cleared out the stomach, and there was no more trouble until this level had been reached again in the course of three or four days. This assumption is corroborated by the fact that Rovsing's first patient had one or two of the febrile attacks while convalescing from the operation, each yielding immediately to lavage of the stomach. The fever is thus not a contraindication for operative measures as the cancer itself is not directly responsible for it. The prognosis of these cases is comparatively good as is evidenced by Rovsing's first case. There had been symptoms for four years and the man has been in fine health to date since removal of the adenocarcinoma in June, 1916. It was a papillomatous tumor displaying little tendency to grow down into the depths, and was sharply circumscribed, although spreading over the lesser curvature, mostly on the rear wall and pylorus.

Ugeskrift for Læger, Copenhagen

August 30, LXXIX, No. 35, pp. 1439-1478

89 *Habitual Rectum Constipation V. T. E. H. Thaysen.—p. 1439. Commenced in No. 34, p. 1398.

89. **The Clinical Picture with Rectum Constipation.**—Thaysen, in this fifth article on habitual constipation, discusses only the clinical and roentgenologic aspects of what he calls rectum obstipation. He emphasizes that chronic constipation is not accompanied by pains unless the colon is involved, and predominantly the ascending colon. As with the latter the pains are restricted to the right iliac fossa, they are often ascribed to chronic appendicitis. Of his thirty-two patients with this "ascending constipation" the appendix had been removed on account of the persisting pains in seven. In his total series of 112 patients with chronic habitual constipation, appendicectomy had been done in eleven cases and without improving conditions in any instance. When the descending colon is involved with rectum constipation, there is usually tenderness in the left side. The pains assumed the character of colic pains only in 6 of his total 112 cases. In these 6 cases of spastic rectum constipation the different parts of the colon were involved in about the same proportions. Thaysen agrees with Pinkus that the disturbances from habitual constipation are often erroneously ascribed to gynecologic lesions.

In discussing the causes of habitual constipation, he relates that in six healthy persons repeatedly examined by rectoscopy or roentgenoscopy and digital exploration of the rectum, it was never found entirely empty. The accumulating feces could stay in it for eight hours during the day and fifteen hours including the night without inducing a desire for defecation. This suggests that the reflex inducing defecation is not started by contact of the rectal mucosa with fecal matters, as some believe. This and other facts cited, seem to demonstrate that the defecation impulse proceeds from the central nervous system, started by some reflex from the digestive tract, the change to an upright position in the morning or from pylorus functioning after a meal. The physiology of the sphincters is complicated, three centers having been already found that seem to regulate it, one in the sympathetic nerve ganglia in the pelvis; one in the sacral nerves, and—in apes—one in the anterior central convolution. The mechanical effect of straining at stool is reenforced by a deep inspiration position of the diaphragm and by the contraction of the pelvic floor muscles which holds the pelvic organs up and prevents their sliding down. Weakening in any of these factors favors constipation, and also the unphysiologic high seat of the water closet.

He gives the details with the roentgen findings in 6 cases of the different types of rectum constipation, that is, retention of a considerable amount of feces in the rectum for two days without defecation. Sagging of the transverse colon does not seem to be an appreciable factor in constipation of this portion of the bowel. The distance from the umbilicus was less than 5 cm. in 2 cases of this type in men, and in 6 men and 9 women with retention any where in the colon. In 4 men and 5 women with this latter type, the distance was from 6 to 9 cm.; in 9 women it was from 10 to 12, and in one woman 13 cm. One of his tables giving the details of 74 cases of rectum constipation shows that there were no pains in 20 of 29 pure cases; no pains in one of 8 cases of the same, plus retention in the ascending colon; in one of 3 cases of rectum constipation plus retention in the transverse colon, and none in 17 among 34 cases of rectum constipation plus retention in various portions of the colon from cecum to sigmoid flexure. With pure constipation in the ascending colon, pains were pronounced in 19 of 23 cases. In none of his cases of rectum constipation did he ever find the rectal sphincter abnormally contracted, not even in his 6 cases of spastic rectum constipation, but he noted an unmistakable spasm of the sphincter in 3 nervous patients with no tendency to constipation. Sphincter spasm can generally be traced to an anal fistula or hemorrhoidal tumor.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. LXIX, No. 22 CHICAGO, ILLINOIS DECEMBER 1, 1917

THE CLINICAL COURSE AND THE DIAGNOSIS OF TRACHOMA

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Trachoma may be described as a specific, transmissible, destructive inflammation of the conjunctiva, characterized by the formation of the so-called trachoma granulations, which may be either papillary or follicular; the ultimate formation of scar tissue; marked chronicity, and intractability to all forms of local treatment.

Various inflammations of the conjunctiva give rise to the formation of follicles that cannot be distinguished by inspection from those caused by trachoma; hence the formation of scar tissue is the one all important diagnostic feature of the disease. If trachoma had been called "scar producing conjunctivitis" much of the confusion of ideas and differences of opinion that now exist concerning the diagnosis of the disorder would never have arisen.

Clinically trachoma presents itself in two forms: (1) fulminating trachoma, and (2) slow trachoma.

The first is a very acute inflammation which comes on suddenly and is accompanied by the usual symptoms of a severe infection of the conjunctiva, that is, redness, swelling, lacrimation, photophobia, pain and marked thickening of the lids. This type of the disease is rare, and will be described more fully later on.

"Slow trachoma" seems to be the best term to apply to the ordinary forms of the disease. At first blush it would appear that "chronic" would be the proper adjective to use. But the condition referred to under the second heading may be either acute or chronic; hence the name "slow trachoma" will be used in this article to refer to all forms of trachoma except the fulminating type.

Slow trachoma is essentially a chronic and long drawn out disease, generally extending over a number of years. It may begin acutely, or the onset may be so insidious that the patient is not aware that there is anything wrong with the eyes. In a short time the granulations appear. These may be considered under two general headings, the papillary and the follicular.

The papillary granulations are minute structures somewhat difficult to describe. They are closely packed together, and so small that the naked eye does not ordinarily recognize them as discrete bodies, but gets the impression that the areas involved are swollen, uneven and "raw" looking on the surface. An area of papillary granulations somewhat resembles in appearance the surface of the tip of the normal tongue.

The follicular granulations are more or less rounded bodies ranging in size from the head of a pin to a small pea, and presenting considerable variation in appearance and structure. Some stand well above the surface, with a more or less pedunculated base; others are buried in the conjunctiva. They may be bright red, pinkish gray, pinkish yellow, or almost white; the latter are deeply buried. The red are quite firm; the yellowish are generally soft and gelatinous, and may be translucent. The last are known as the "sago grain" or "frog spawn" granulations.

The largest follicles are found in the culdesac, and often bleed slightly when the lid is everted. The entire conjunctiva may be studded or infiltrated with these bodies, or only a few isolated ones observed.

In a varying time, depending on the severity of the case, scar tissue begins to appear as fine white lines or irregular areas between the granulations. The production of scar tissue goes on slowly, and ultimately replaces the normal conjunctiva on practically the entire surface of the upper lid and the culdesac.

Slow trachoma occurs in various grades of acuity. A small percentage of the cases are benign, running their course with slight discomfort to the patient. Others are severe, with much inflammatory reaction and marked symptoms. All possible gradations between these two extremes are seen in the clinics.

A striking characteristic of the disease is the tendency to alternating periods of quiescence and exacerbations of the inflammatory process. The diagnostic lesions are always present, however, and can easily be detected by a careful examination of the inverted upper lid and culdesac.

In the late stages, cicatrization becomes an important feature. If the tarsal plate is involved, the shrinkage and resulting deformities of this structure cause entropion. When this is marked, the eyelashes rub against the cornea, producing ulceration and opacity. In this manner sight is involved, and ultimately vision may be lost.

"Trachoma is a veritable curse to the countries where the disease is endemic, its victims suffer for years and are usually incapacitated for years; many of them become blind."[1]

METHOD OF EXAMINING THE EYE

Before attempting to diagnose trachoma, it is imperative that the observer should become thoroughly familiar with the appearance of the conjunctiva in both health and disease, and especially the conjunctiva of the upper lid and culdesac. To explore this part of the eye it is necessary to evert the lid and also to expose the culdesac by special manipulation. The best instrument for this purpose is the ordinary wire loop cavities are sensitive to pain. "In short," he concludes, "the attempt to answer the question 'Do animals feel pain?'—which the layman answers glibly in the affirmative—is to step on a treacherous trapdoor which drops one into a hornets' nest of philosophy, psychology and biology."

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[1] Haab: External Diseases of the Eye.

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the ordinary inflammations, the structure of the conjunctiva in any given area is practically uniform, that is, it is a homogeneous tissue; but in trachoma the structures are permanently changed. Scar tissue is formed, and it is deposited in irregular and more or less sharply defined patches. Between these patches are areas of highly vascular inflammatory tissue or normal conjunctiva (Figs. 3 and 4).

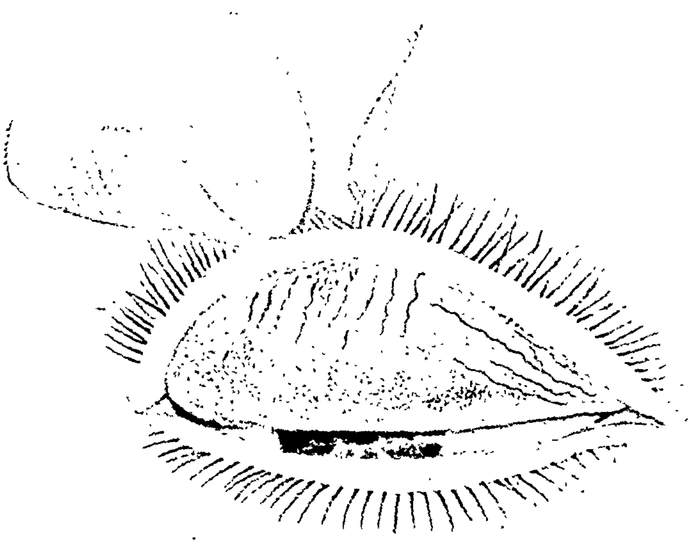

Fig. 3.—Upper lid of right eye. This illustration shows the appearance of a case of slow trachoma before proper pressure has been made with the eye turner. The lid is roughened and the adventitious blood vessels can be noticed running across the outer third of the tarsal plate. It is impossible, however, to make out any scar tissue when the lid is manipulated in this fashion. This should be contrasted with the same lid after the proper pressure has been applied, as shown in Figure 4.

When pressure is made from beneath this ordinarily invisible scar tissue, it becomes white much more easily than the other elements of the conjunctiva; hence this maneuver enables us to detect it when it is present in very small amounts, that is, in the early stages of the disease. In well marked cases of long standing (Figs. 5 and 6), the scar tissue is at once apparent even to the most casual observer on simply everting the lid; but in recent or very mild cases, the scar tissue may be present in so slight an amount as not to be apparent unless the lid is manipulated as described above. The whole conjunctiva in such patients is more or less inflamed and swollen, and the small areas of scar tissue are deep down and obscured by the inflammatory changes (Fig. 3).

The lower lids are inspected by pulling them down with the index finger and having the patient look up, meantime moving the finger slightly from side to side to roll out all parts of the lower fornix.

It cannot be positively determined that any suspected individual is free from this disease until both lids of each eye have been carefully examined in the manner just described. Certain changes on the tarsal plate are always present in trachoma; but they may be so slight that only an expert can detect them, and the upper culdesac should invariably be examined by all ordinary observers.

The specific causative agent of trachoma has not as yet been discovered, although a tremendous amount of research work along this line has been carried out.

Prowazek has described certain cell inclusions that are frequently found in smears from trachomatous eyes that have been stained by Giemsa's method. Similar inclusions are found, however, in the pus from inclusion blennorrhea and sometimes in the genital discharges of men and women suffering from acute inflammation of these parts. Reference must also be made to Lindner's "initial bodies." These are coccilike bodies seen in the cavities of the protoplasm of the epithelial cells. They apparently multiply, and are believed by some investigators to be living organisms. Whatever the ultimate decision may be regarding the true nature of these cell inclusions, the subject may be dismissed for the present with the statement that the finding of these bodies is so inconstant as to render the making of smears and their microscopic examination of but little practical assistance in the clinical diagnosis.

Despite occasional assertions to the contrary, there is no doubt that trachoma is transmissible from one person to another. Fulminating trachoma spreads rapidly among the crowded occupants of a vessel's steerage, as has been amply demonstrated several times on vessels arriving at Ellis Island.

The virus of slow trachoma is not as virulent as the other variety, and some individuals undoubtedly possess a high degree of resistance to it. This explains the fact that several members of a family may escape although all the rest have the disease. Deliberate and accidental inoculations in human eyes have not always resulted in producing the disease. Cases are also occasionally encountered in which but one eye is involved.

The results of the attempts to inoculate apes and other animals with trachoma are inconclusive. Certain workers claim to have done so; but as the condi-

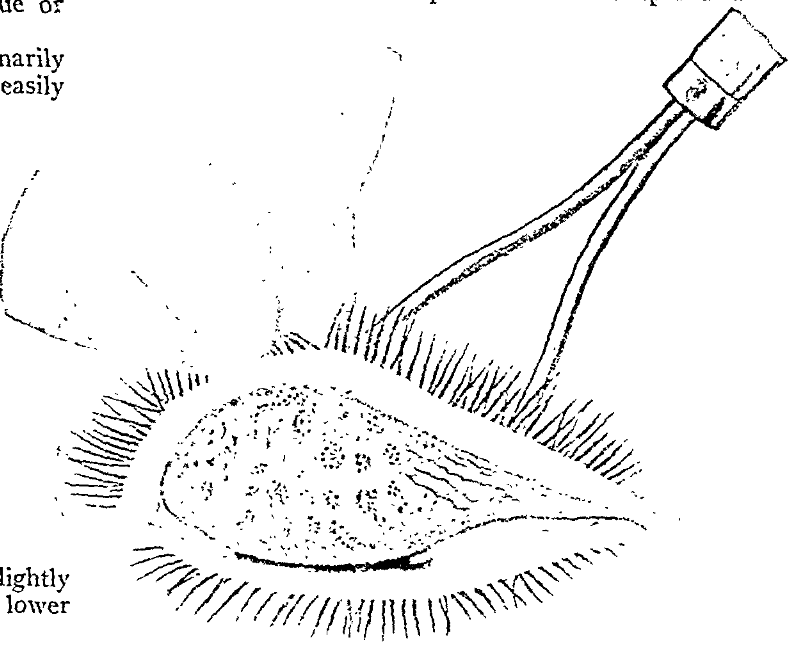

Fig. 4.—This is the same lid shown in Figure 3, but the glove buttoner has been manipulated so as to make the lid more or less anemic and bring out the scar tissue. Note the areas of papillary granulations surrounded by the bands of white scar tissue. This method of using the turner to make the lid anemic requires some practice, but is of extreme importance in detecting scar tissue in its early stages.

tion produced disappeared spontaneously in a few months without the formation of scar tissue, the identity of the disease produced in these animals with human trachoma has not been satisfactorily proved. The fact that inclusion bodies were found in the scrapings from the ape's eyes cannot be considered as confirmatory until the nature of these inclusions is definitely settled.

Surgeon C. H. Lavinder and I made numerous attempts to inoculate *Rhesus* monkeys and baboons with material obtained in cases of slow trachoma of the acute type. The experiments were carried on for several months, but the results were uniformly negative.

THE GRANULATIONS

Papillary Granulations.—The gross appearance of these granulations has already been described. According to MacCallan:

> The papillary growths are caused by an increase in the surface area of the hypertrophic conjunctiva. The latter is thrown into folds between which correspondingly deep clefts are formed; then on cross section the folds appear as papillary ridges. The connective tissue forming the papillae is covered with a very much thickened epithelium which of course is continued on into the depressions. These depressions have thus in microscopic cross section the appearance of narrow canals lined with epithelium and were accordingly regarded at one time as tubular glands; and hence the formation of new glands was alleged to occur in trachoma.
>
> Papillary hypertrophy as above described is not pathognomonic of trachoma; it is found in any condition of long continued irritation of the conjunctiva such as results from ectropion, spring catarrh and chronic conjunctivitis.

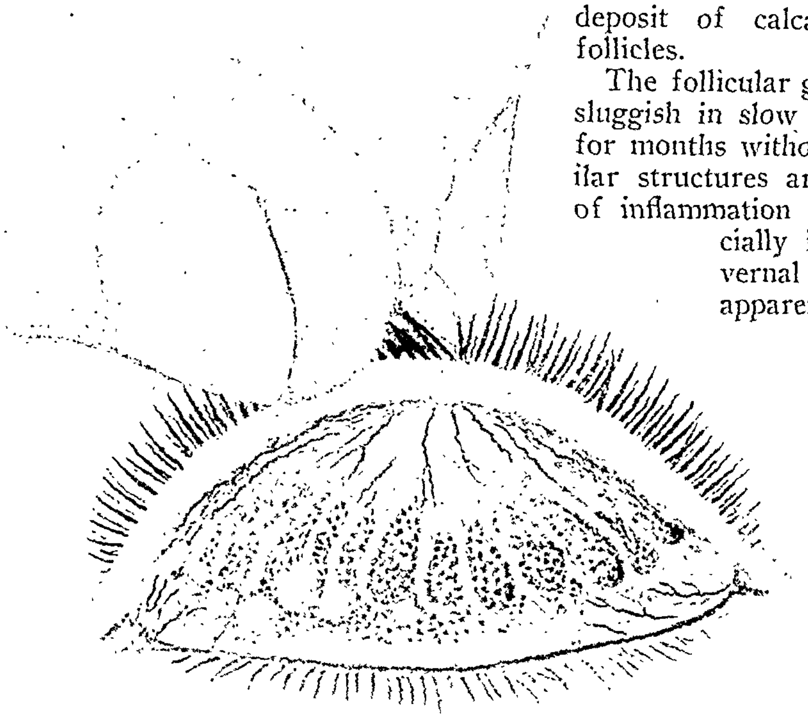

Fig. 5.—Upper lid of right eye. A *typical case of slow trachoma of several years'* standing. The islands of papillary granulations separated by vertical narrow lines of scar tissue are well marked. There are five *large gelatinous follicles* at the lower border of the tarsal plate. Note that the culdesac has *been replaced almost* entirely by *scar tissue.* The normal vertical vessels in the culdesac have disappeared, and a few adventitious vessels running in an oblique direction can be seen in the nasal side of the culdesac. There still remains some normal *conjunctiva in the* upper part of the lid.

Follicular Granulations.—These are the larger granulations ranging in size from a pinhead to a small pea. The largest ones are found in the culdesac. There are three quite distinct types, the red follicles which are the ordinary kind, the yellow gelatinous follicles, and the buried white follicles. All three varieties may be found in the same eye.

The firm red follicle is a very common lesion in all forms of trachoma (Fig. 9). These follicles may be simply poorly defined eminences in the conjunctiva, or well marked rounded bodies. The whole upper lid may be a mass of these new formations (Fig. 11), but it is more usual to find them along the lower border of the tarsal plate (Fig. 9).

The gelatinous gr[illegible]tion are grayish yellow bodies, so[illegible] si[illegible] uently translucent. Large [illegible] icles are often found in the culdesac. They may bleed slightly when the lid is everted. These are the so-called "sago grain" or "frog spawn" granulations (Figs. 5 and 10).

Sometimes they fuse together, forming an area of intermingled gelatinous and scar tissue. This condition is known as Stellwag's brawny edema, or the gelatinous trachoma of Stellwag. It is especially common in the culdesac, the conjunctiva in this region being very much thickened, light bluish gray, and composed of fairly smooth scar tissue infiltrated with gelatinous material (Fig. 6).

The pure white follicle is found in the tarsal region, deeply buried in the conjunctiva, showing through as a small whitish spot or point (Fig. 9). Granulations of this description are not very common; when present they are generally found in the acute type of slow trachoma. As they are very rare in the ordinary inflammations of the conjunctiva, they may be rated as having some diagnostic importance. Care must be taken, however, not to mistake the small yellow bodies, often seen in normal eyes and due to a deposit of calcareous matter, for real follicles.

The follicular granulations are extremely sluggish in slow trachoma, and may exist for months without apparent change. Similar structures are seen in various forms of inflammation of the conjunctiva, especially in follicular catarrh, and vernal conjunctivitis. They are apparently not an essential lesion of the disease, but merely the reaction of the lymphoid elements of the conjunctiva to certain types of prolonged irritation.

The microscopic pathology of trachoma is in a somewhat chaotic state, considerable difference of opinion existing on many important points. It has been commonly taught that the follicles either ruptured and became organized, or became organized without rupture, and that in this way the scar tissue was produced. The objection to this view is the fact that the follicles produced by other forms of inflammation, especially follicular conjunctivitis, histologically resemble very closely the follicles in trachoma, and that these structures disappear without the formation of scar tissue, or at least without producing enough scar tissue to be detected clinically. The organization of the follicles either with or without rupture does not seem sufficient to explain the amount of cicatrization found in trachoma.

From a clinical standpoint there is good reason to believe that when the virus of trachoma attacks an eye, it ultimately invades the deeper structures of the conjunctiva and frequently in old cases the tarsal plate. The organism proliferates in these deeper structures, and gives rise to products that cause a rapid hyperplasia not only of the lymphoid elements but also of the connective tissue cells. The proliferation and organization of the fibrous elements of the conjunctiva produce the scar tissue which ultimately crowds out and entirely replaces the normal elements of the conjunctiva. The process of cicatrization, then, as pointed out by Fuchs,[2] is somewhat analogous to interstitial hepatitis, and *not* at all similar to the healing of an ulcer by scar tissue. As long as there is any lymphoid tissue left, the infection remains in it indefinitely. The virus does not exist in the scar tissue after the latter becomes fully organized.

Mayou asserts that by the use of certain plasma stains it is possible to distinguish histologically between many of the follicles of trachoma and those found in follicular conjunctivitis. He believes that:

> The granules found in trachoma are follicular formation plus trachomatous infection, the follicles being simply an effort on the part of the tissue to produce mononuclear cells, and becoming secondarily infected with trachoma. Although, indeed, as a general rule a considerable number of them seem to be infected even in the early states, . . . yet follicles can be found in trachomatous conjunctivitis which are evidently not infected with trachoma.

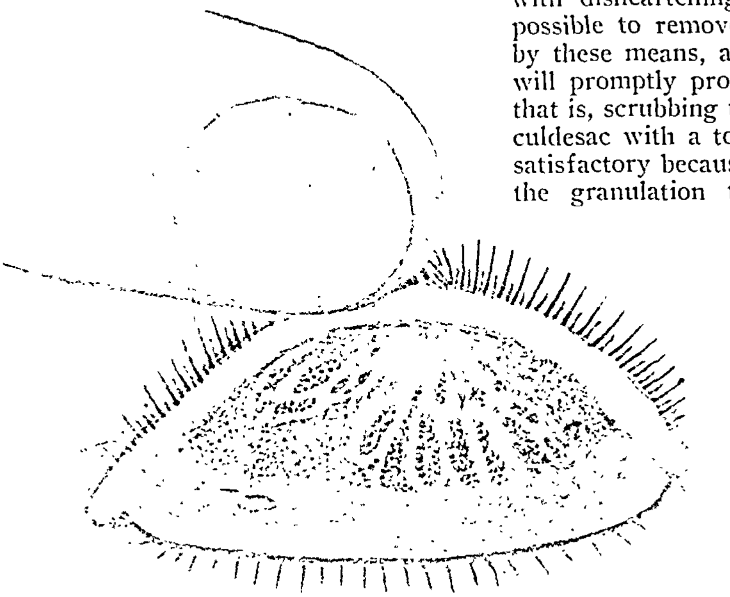

Fig. 6.—Upper lid of left eye. An old case of slow trachoma. Cicatrization is well marked. There remain, however, a few areas of papillary granulations near the center of the lid. The culdesac is completely filled up with a mass of poorly defined gelatinous granulations representing a typical case of Stellwag's brawny edema. The disease has existed for about six years.

This view coincides closely with the clinical course of the disease, and is probably correct. The student should clearly understand that the follicular granulations are not an essential or diagnostic feature of trachoma, but should be considered as a complication. They do, however, afford a lurking place for the virus where it proliferates or may remain latent for months.

In trachomatous eyes there is first the formation of ordinary follicles which are due to the irritation; and later on the virus invades these structures so that at first they are ordinary follicles and later on specific.

Rupture of the follicle may take place either from a thinning of the epithelium overlying it, owing to pressure from beneath, or from an interference with the blood supply by the scar tissue, causing necrosis.

The follicles are semisolid; hence, when rupture occurs, a part of the contents may escape, but not all. Septic infection of the ruptured follicle, however, is likely to occur, and the secondary inflammatory process ensuing may cause a temporary increase in size. Ultimately the follicle is destroyed by the combined action of the pyogenic organisms and the trachoma virus.

Undoubtedly some of the follicles, especially the smaller ones and those deeply buried in the conjunctiva, disappear by some process of absorption or atrophy.

Cases under treatment have been examined daily for a period of a year and a half without the rupture of any of the follicles being observed, and hence it will be apparent that the formation and rupture of the follicle is not a progressive pathologic process occurring in a more or less definite period of time.

It was formerly the custom to attempt to destroy these bodies by expression. In nontrachomatous cases, mechanical destruction of the follicles is followed by a disappearance of the condition in a comparatively short length of time. Some of the popularity of this method of treatment was probably due to cures produced in cases in which a mistake had been made in the diagnosis. Expression in true trachoma may hasten the disappearance of the larger follicular granulations, but it has no effect on the papillary granulations which are always present. A striking characteristic of trachomatous tissue is its ability to regenerate after partial destruction. The granulations may be curetted, excised, expressed or cauterized, and yet they return with disheartening persistence. It is impossible to remove all the lymphoid tissue by these means, and any trace that is left will promptly proliferate again. Grattage, that is, scrubbing the surface of the lid and culdesac with a tooth brush, is much more satisfactory because this operation removes the granulation tissue quite thoroughly; and the mercuric chlorid solution used on the brush is likely to sterilize what little remains. Grattage, however, cannot produce a cure when the tarsal plate is invaded by the trachomatous process, the infected tissue here being buried deep in the cartilage where the bristles of the brush cannot possibly reach it. Grattage followed some weeks afterward by removal of the tarsal plate is the procedure advocated by certain specialists for cases of this description.

The visible granulations in trachoma are generally limited to the under surfaces of the lids and culdesac, similar formations being very rarely seen on the bulbar conjunctiva. However, Mayou[3] determined that on section the bulbar conjunctiva does show changes, and at the corneal limbus certain inflammatory and degenerative areas may be noted. When properly stained and sectioned, on microscopic examination these areas are found to contain typical trachomatous follicles. Occasionally small pits or sunken scars may be observed just outside the limbus due to the cicatrization of these areas.[4]

SCAR TISSUE

In severe cases the scar tissue begins in the culdesac and spreads most rapidly in that region. In mild cases it may first of all be detected in the inner canthus at the junction of the tarsal plate with the culdesac, and careful search should always be made in this locality in doubtful cases. On the tarsal plate it generally extends upward in narrow bands toward the edge of the lid, with islands of exuberant lymphoid tissue in between (Fig. 5). A large stellate area in the middle of the tarsus is not unusual.

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[2] Fuchs, H. E.: Text Book of Ophthalmology, Ed. 5.

[3] Mayou, H. S.: The Changes Produced by Inflammation in the Conjunctiva, Hunterian Lecture, 1906.

[4] MacCallan, A. F.: Trachoma and Its Complications in Egypt, Cambridge, 1913.

In the majority of patients the extreme outer and inner borders of the plate are the last to become cicatrized. The culdesac always becomes completely converted into scar tissue long before the process is completed on the upper lid. When completely organized, the scar tissue is pure white, smooth, and somewhat glistening. Usually it forms in islands which slowly spread; but very rarely the formation takes place simultaneously and at a uniform rate over the entire tarsal conjunctiva. In mild cases the process goes on very slowly, and it may be years before the lids are completely cicatrized.

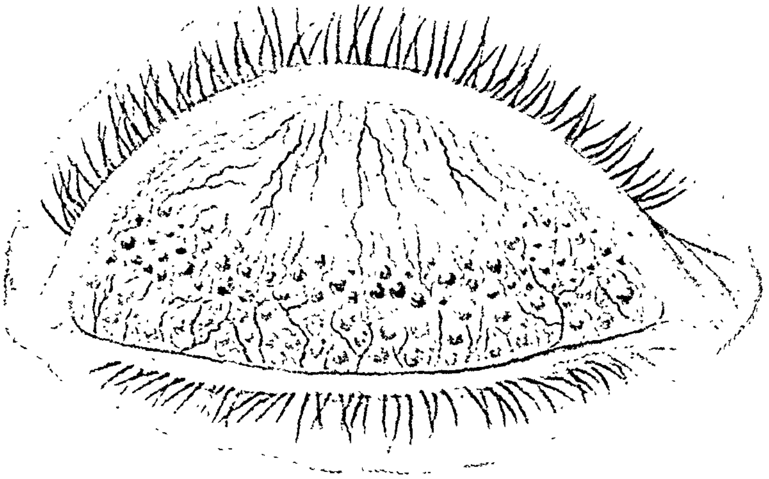

Fig. 7.—Follicular conjunctivitis, upper lid of right eye. The culdesac and the lower portion of the tarsal plate are studded with a large number of follicles. These follicles are fairly uniform in size, almost perfect hemispheres, and they appear to spring from the surface of the conjunctiva and are not buried in that structure. This form of follicular conjunctivitis is not so common as that shown in Figure 8. The diagnosis from trachoma in cases of this type is made by the fact that the conjunctiva is not thickened, that the normal blood supply is maintained, the vessels of which can plainly be seen running vertically upward in the culdesac; also by the size, appearance and superficial position of the follicles. It should be observed that there is no thickening in the conjunctiva of the culdesac, that structure being normal in the spaces between the granulations.

Patients are occasionally encountered with a narrow band of scar tissue running horizontally across the culdesac. The strip is so even in width and sharply demarked as to appear as if made by a surgical operation. The tarsal conjunctiva is somewhat thickened, but not characteristic of trachoma. MacCallan[4] believes that scars of this description are produced by a former attack of gonorrheal conjunctivitis, and this opinion is probably correct.

The lower lids for some reason recover much more promptly than the upper, and it is not always easy to decide whether scar tissue is present. For this reason an examination of the lower lid alone often affords but little information in slow trachoma. Many well marked and severe cases will be found in which the lower lids present absolutely no pathologic changes to the naked eye.

In fulminating trachoma, however, the lower lid is diagnostic in the early stages.

PANNUS

In all cases of trachoma, pannus is generally present. This statement is not to be construed as meaning that a leash of large blood vessels will be found running across the cornea; but that on close inspection, with a hand lens if necessary, a fringe of very fine, almost invisible vessels invading the cornea from the conjunctiva can be detected. They are generally most marked in the upper and lower segments, but may extend completely around the corneal limbus. A more or less opaque gelatinous membrane is apt to follow the vessels onto the cornea.

Pannus is now considered as trachoma of the cornea and to be due to an invasion of that structure by the specific inflammation.

A temporary invasion of the cornea by fine vessels as described above may be encountered in a number of acute inflammations of both the cornea and the conjunctiva. According to MacCallan,[4] the permanent pannus of trachoma may be distinguished from that due to ulcers of the cornea and a secondary variety produced by interstitial keratitis, by the following points: When due to an ulcer, the vessels are larger and are localized to one part of the cornea. The pannus produced by interstitial keratitis arises from the deeper blood vessels of the sclera, and the vessels seen on the cornea cannot be followed up and proved to be continuous with those of the conjunctiva; while in trachoma it can be determined that the fine vessels seen on the cornea are branches from the conjunctival blood supply.

Pannus of a moderate degree frequently clears up, leaving but slight evidence. When present it is merely an evidence of irritation of the cornea and the response of that tissue to inflammation, and should be considered as a corroborative and not a positive sign of trachoma.

CORNEA

In old neglected cases or those that have been very severe, it is common to find corneal opacities with extensive pannus. Many such eyes are seen among the Egyptians, Syrians, Indians and some of the mountaineers of our own country.

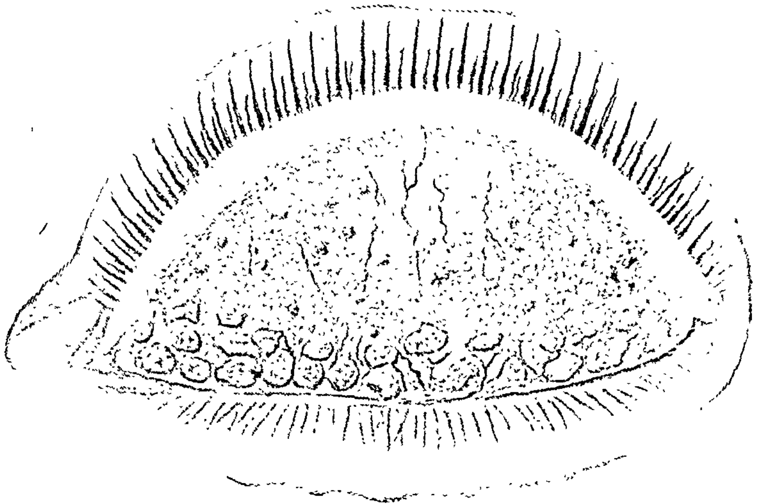

Fig. 8.—Typical case of follicular conjunctivitis, upper lid of left eye. In this patient the culdesac is filled up with a number of irregularly shaped, light colored follicles. The conjunctiva over the tarsal plate is somewhat roughened and thickened, and contains a few scattered small lymphoid follicles. Here there is a hypertrophy of the lymphoid elements of the conjunctiva with chronic conjunctivitis. The diagnosis between cases of this type and trachoma is sometimes extremely difficult. Lids of this description are very frequently found in schoolchildren, and often cause the examiner much embarrassment in making diagnosis. Careful observation will sh , that the norm blood vessels can still be seen here a culdesac; als that there are areas of more or less between t large follicles in that region. In su tissue can detected; neither is there any true tra ne examinat of the throat and nose in these patic ays show there is hypertrophy of the adenoid lities, such enlarged tonsils or adenoids.

Ulceration of the cornea its f two causes:

1. The trachomatous inflammation attacks the tissue of the cornea itself, or some other form of infection gains lodgment in a trachomatous eye, causing the ulcer by the usual pathologic changes.

2. The contraction of the eyelid, especially the deformity of the tarsal plate, produces trichiasis, and the inverted lashes rub on and irritate the cornea. The last seems to be the commonest cause of opacity of the cornea.

The older teaching, that the roughness of the upper lid due to the follicles was responsible for the damaged cornea, cannot be true. Hundreds of cases with eyelids fairly studded with follicles are seen in which the cornea is clear and uninjured; hence some other cause for the corneal lesions must be sought.

The invasion of the cornea by the disease itself and the trichiasis are the more likely causes. Some weight must also be given to the interference with the circulation of this structure due to the constant pressure of a deformed lid.

DEFORMITIES OF THE LIDS

Some degree of ptosis is present in almost all cases of slow trachoma of long standing, and it is especially marked in the fulminating type of the disease, the lids being greatly swollen.

In old cases the shrinkage of the scar tissue produces various deformities, and the lower edge of the lid is apt to present a wavy line instead of the normal curve with the convexity downward (Fig. 12). Such eyes have a "droopy" look, very significant to the trained observer.

In severe cases the inflammatory process does not stop at the conjunctiva, but also invades the tarsal cartilages where no ordinary applications can reach it. Scar tissue is produced here as elsewhere, and the plate may be twisted and pulled entirely out of shape by the resulting cicatrization. Entropion with trichiasis, as mentioned above, is the usual result and the most serious. In slow trachoma the disease may exist for many years before these changes become evident, and in some mild cases they never appear at all.

The conditions which have just been described are the usual lesions of trachoma. Among the rarer sequelae of severe cases of the disease should be mentioned exerosis conjunctivae, posterior symblepharon and ectropion of the lower lid.

DISCHARGE

In all trachoma there is more or less secretion; but the disease is so often complicated with other conjunctivitis that the nature of the discharge is of little importance and of no help in making the diagnosis.

CLASSIFICATION OF TRACHOMA

Various classifications based on clinical characteristics have been proposed by the different writers on trachoma. Some of them are rather complicated, and none altogether satisfactory. A common plan has been to describe the papillary, follicular and mixed forms, according to the type of granulations which predominated. As papillary granulations are always present as long as the trachoma is active, there can be no such condition as a simple "follicular" form in contradistinction to a "mixed" type, and either the "follicular" or the "mixed" subdivision should be omitted, for the terms in this instance are synonymous.

If some clinical classification of slow trachoma is desired to secure brevity of description, the term "papillary" might be properly applied to those cases of trachoma in which no follicles can be detected by the naked eye, and "follicular" to those in which, in addition to the papillary granulations, definite follicles are present. It must be clearly understood, however, that this is a clinical classification only; because if the papillary cases are examined microscopically, true trachoma follicles will be found in the conjunctiva, but they are too small or too deeply buried to be seen on inspection.

The gelatinous trachoma of Stellwag has already been mentioned. In it there is a fusing together and gelatinous infiltration of the follicles which is more commonly found in the culdesac.

STAGES OF TRACHOMA

When the formation of scar tissue has advanced sufficiently so that it is easily observed in the conjunctiva, the eye is described as being in the beginning stage of cicatrization.

As the process proceeds and the areas of scar tissue equal or exceed the other parts, the case is referred to as being in the advanced stage of cicatrization.

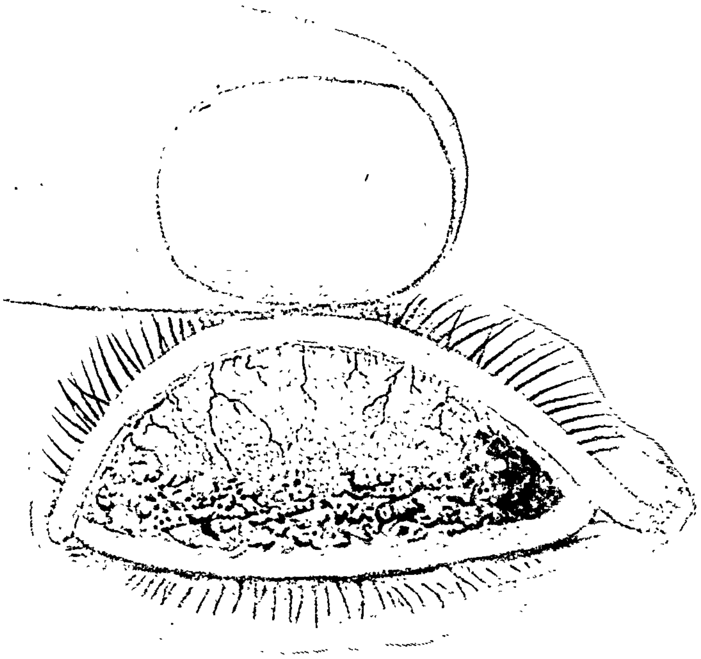

Fig. 9.—Recent case of slow trachoma, upper lid of right eye. The lower part of the culdesac of this eye is completely converted into scar tissue. On the lower part of the tarsal plate there is an area of poorly defined, deep red, partially buried granulations. Higher up still are a number of deeply buried small white granulations. Careful examination with the eye turner showed beginning scar tissue between the granulations over the tarsal plate. The deep buried white granulations are strongly significant of trachoma. Note the thickening of the culdesac and the absence of any visible blood vessels in that locality. This case should be studied in conjunction with Figure 8. The diagnosis of trachoma is made on the scar tissue and deeply buried white granulations, and the absence of the normal blood supply. There was also marked pannus in this case.

"Cicatricial lids" is the term applied to the eyes when the trachomatous tissue has been completely replaced by firm, smooth, white scar tissue. This is nature's only method of effecting a cure.

RELATION TO SURROUNDINGS, RACE AND AGE

Trachoma flourishes chiefly among the overcrowded, underfed, overworked, and those living in bad hygienic surroundings generally. No locality or race is exempt, however, and occasionally cases are found among the well-to-do and those whose method of life is above reproach from a sanitary standpoint. The age incidence is extensive. I have seen a well marked case in a child under 2, and I have a patient under treatment now who contracted the disease after 63.

FULMINATING TRACHOMA

Fulminating trachoma is an acute and severe inflammation of the conjunctiva. The onset is abrupt, the upper and lower lids becoming affected practically simultaneously.

The palpebral conjunctiva is intensely red, very edematous, and much thickened. It has not the velvety appearance of a severe case of acute conjunctivitis, but is more coarsely granular; and while it may not present typical discrete follicles, its surface is markedly irregular and uneven like a piece of broken granite (Fig. 11). The ocular conjunctiva is always more or less involved, sometimes very severely; but it does not usually present any diagnostic symptoms other than those of a very intense reaction. The conjunctiva of the lower lid presents the same appearance of broken granite and appears to be superabundant, being thrown up into folds or ridges. Discrete and definite follicles may also be present in this locality.

While the lids are always very much thickened from the start in this type of the disease, the time for the appearance of the characteristic unevenness or follicles varies considerably. It may be delayed for seven or eight days, generally, however, appearing early or about the fourth day.

There is photophobia, blepharospasm, and a profuse watery discharge sometimes mucopurulent. The cornea often becomes involved either from an interference of its blood supply by the edematous and inflamed ocular conjunctiva, or by being attacked directly by the infection itself. Ulceration and infiltration may follow with widespread destruction to the corneal substance and subsequent opacities.

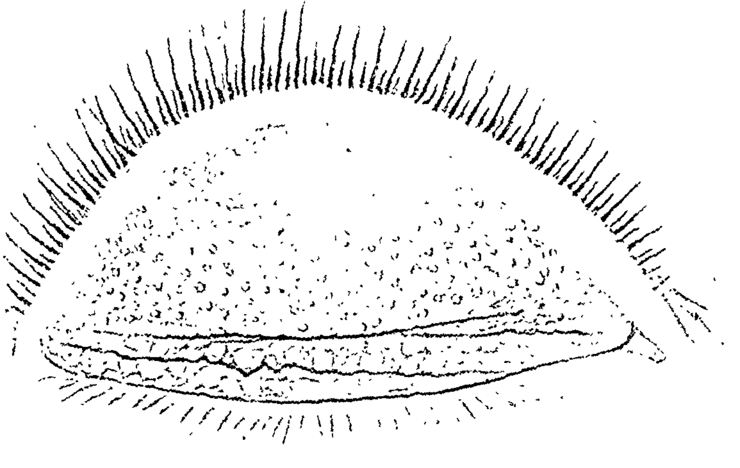

Fig. 10.—Slow trachoma of some months' standing, upper lid of right eye. The culdesac here is filled with a mass of poorly defined, semigelatinous granulations of a pinkish salmon color. Deep cracks can be observed between the granulations which are arranged more or less roughly in rows. The conjunctiva of the tarsal plate is much thickened, very rough, and shows numerous small granulations which can be best detected at the nasal and temporal extremities. No blood vessels are visible anywhere in the eye. No scar tissue could be detected by the most careful search. It is difficult to make a positive diagnosis of trachoma in eyes of this type at the first examination, although the appearance is strongly suggestive of that disease. Patients presenting this appearance should be given treatment for several weeks before a definite and positive opinion is given as to the nature of the disease.

Fulminating trachoma is much more easily transmitted from one person to another than slow trachoma. Generally both eyes are affected, but in rare instances only one eye is involved. The period of incubation has not been definitely determined, but appears to be within eight days.

Fulminating trachoma is a rare disease; in fact, its existence has been denied by some authorities; but on a number of occasions, cases of this type of the disorder have appeared among the crowded occupants of the same steerage compartment of vessels arriving at Ellis Island.

Differential Diagnosis.—Fulminating trachoma must be diagnosed in the early stages from severe phlyctenular conjunctivitis and from acute infections of that membrane by various micro-organisms, especially the gonococcus and the diplobacillus of Morax-Axenfeld. Unless one of these specific organisms is demonstrable in a properly stained smear made from the discharge, the diagnosis may be impossible for a few days. As soon, however, as the characteristic lymphoid enlargement has appeared, the true nature of the disease may be determined. The upper lids in severe simple conjunctivitis and phlyctenular conjunctivitis may present a roughened granular appearance which is apt to be confusing; but in these conditions the lower lids never present the same exuberance of the conjunctiva with the lymphoid follicles so well marked or so prominent as they are in fulminating trachoma. The characteristic phlyctenules in phlyctenular conjunctivitis will also assist in separating that disease. It must also be remembered that there may be an attack of phlyctenular conjunctivitis in an eye already infected with trachoma or a severe attack of acute conjunctivitis in conjunction with follicular catarrh, in which case the diagnosis is practically impossible until the acute complication has subsided. The shortest period in which scar tissue has been demonstrable in these cases by me was six weeks after the beginning of the attack. This, however, is probably unusual, scar tissue not appearing in the ordinary case of the fulminating type until several months have elapsed.

In fulminating trachoma the ocular conjunctiva is always intensely inflamed. This symptom is of material assistance in separating the disease from slow trachoma which is undergoing an acute exacerbation.

COMPLICATIONS OF TRACHOMA

An eye that is already the seat of a trachomatous inflammation may have added thereto any of the other infections to which the conjunctiva and cornea are liable. These conditions are known as "complicated trachoma," and are quite common. The trachomatous process does not protect the eye, as far as is known, from any other kind of inflammation; but, on the other hand, it appears to predispose it to certain forms. A gonorrheal infection is very common with trachoma among the Egyptians, and spring catarrh is frequently complicated by trachoma in localities on which both diseases are common.

The addition of any other infection to a trachomatous eye causes a swelling, redness and discharge which may make the diagnosis for the time being extremely difficult or impossible. Most of these complications, however, can be subdued or overcome by appropriate treatment, maintained for a sufficient length of time, and then the true condition can be definitely determined. The clinical appearance of complicated trachoma, therefore, is that of the original disease plus the symptoms of the added infection. The rule in all such cases is appropriate treatment until the complication has subsided.

DIFFERENTIAL DIAGNOSIS OF SLOW TRACHOMA

The important diagnostic symptoms of trachoma are scar tissue, papillary granulations and trachoma follicles. The most important of these is the scar tissue. It may not be present in the early stage, but sooner or later it is bound to appear. The method of searching for and demonstrating the presence of scar tissue has already been fully explained. It must be remembered in this connection, however, that scars are formed in the conjunctiva by burns from lime or other escharotics, and also by certain infections that cause sufficient inflammatory reaction to produce sloughing or ulceration of that membrane. The narrow strip running horizontally across the culdesac caused by gonorrhea has already been described. Considerable scarring also is the result occasionally of severe cases of smallpox. The scars formed by burns or ulcers, however, differ materially in appearance from those of trachoma, as they are sharply demarked and the conjunctiva is not infiltrated in the irregular manner that is found in that disease.

FOLLICULAR CONJUNCTIVITIS

There are two types of follicular conjunctivitis. The variety illustrated in Figure 7 is unusual. This form may be described as a true folliculosis without an accompanying conjunctivitis. The follicles are small, in color match that part of the conjunctiva in which they are found, glassy in appearance, very uniform in size, sharply demarked from the surrounding tissues, and appear to spring from the surface of the conjunctiva rather than to be embedded in that structure. In these cases the conjunctiva is not inflamed or thickened, but maintains its normal appearance between the follicles; and, what is of the utmost importance, the blood vessels show the same arrangement and stand out as clearly as they do in the normal eye.

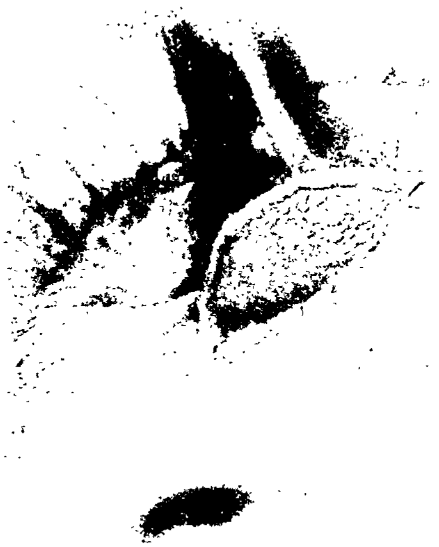

Fig. 11.—Fulminating trachoma of several months' standing. The upper lid is everted and fastened in position on the rubber eye plate by means of two sutures. The patient is under ether preparatory to the grattage operation. A good part of the culdesac can be seen, especially in the nasal half of the eye. Note the numerous granulations, which have been described under the section on fulminating trachoma as having a characteristic appearance something similar to broken granite.

The other type of follicular conjunctivitis is that shown in Figure 8. Here there are numerous follicles in addition to a low grade chronic conjunctivitis. The follicles are irregular in shape and size. The largest are found chiefly in the culdesac or on the lower border of the tarsal plate. They are not so sharply demarked as in the preceding type, and there is more or less thickening and roughening of the conjunctiva between the follicles, although not nearly so much as is found in a true trachoma. The blood supply, while somewhat obscured by the slight inflammatory reaction present, is nevertheless normal, and can be made out on proper examination.

It is this form of follicular conjunctivitis that has caused the greatest confusion in the diagnosis of trachoma, especially among schoolchildren. The process appears to be merely a part of a general hyperplasia of the lymphoid tissue throughout the entire body, for in such cases there are often found adenoids and enlarged tonsils; and the period of life in which this disease occurs corresponds to that in which there seems to be a marked tendency for all the lymphoid tissue to proliferate on slight stimulation. The local irritation in this instance may be due to dust, foul air, gases, and even possibly eye strain.

When the characteristic scar tissue can be made out by the proper manipulation of the eye turner, it is easy to rule out follicular conjunctivitis. In recent cases the diagnosis must be made on two things: (1) the condition of the conjunctiva of the culdesac and lower one third of the tarsal plate (everted lid), and (2) the blood supply of the culdesac.

In the early stages of trachoma, the fornical conjunctiva of the upper lid is always more swollen, inflamed and rough than in follicular conjunctivitis, and no areas of normal tissue can be seen in this region or over the lower third of the tarsal plate.

No visible blood vessels can be detected in the culdesac in the beginning stages of trachoma, as the inflammatory changes obscure them. In follicular conjunctivitis the vessels may be almost hidden or considerably distorted by the follicles; but if any vessels are observed running in a *vertical or approximately vertical direction* across the culdesac, it is safe to exclude trachoma (Fig. 8).

Occasionally it may be necessary to treat the eyes for a few days with sedative and slightly astringent remedies in order to overcome a temporary inflammation before giving a positive opinion as to the nature of the case.

VERNAL CATARRH AND OTHER DISEASES

In this disease the conjunctiva of the tarsus is the seat of a number of papillae which are broader and flatter than those in trachoma. The new growths are crowded closely together, resembling somewhat a cobblestone pavement, and are frequently covered by a bluish white film. In addition to the palpebral lesions, there also may be new formations around the limbus of the cornea in the shape of uneven, hard, gelatinous masses. The symptoms of vernal catarrh are much worse in the spring and summer than in the winter, and the history of the case often will assist in the diagnosis. The characteristic lesions are present throughout the year, but the signs of acute inflammation, that is, the redness, photophobia and lacrimation, are much ameliorated during the winter.

Some cases show involvement only of the tarsal plate, with no symptoms around the limbus of the cornea. In others the cornea is the only part affected. The secretion is generally scant, but when properly stained shows a large number of eosinophil cells.

The diagnosis from trachoma is made on the history; the appearance of the granulations, which are larger, flatter, paler and more closely packed together than in trachoma; the bluish white membrane when present, and the large number of eosinophil cells found in the discharge.

The commoner inflammatory conditions of the conjunctiva likely to be mistaken for trachoma have been described in detail. Other diseases that present clinically somewhat similar lesions to trachoma and may on rare occasions have to be diagnosed from that disorder are tuberculosis of the conjunctiva, syphilis of the conjunctiva, nodules around foreign bodies and Parinaud's conjunctivitis.

Tuberculosis of the conjunctiva appears as small grayish nodules on the tarsal surface with occasional ulcers. There is apt to be swelling of the glands in front of the ear. The bacillus may be found in sections of the involved tissue or by inoculation of the material into guinea-pigs. As a general thing, the disease attacks but one eye, and is not very painful.

Parinaud's conjunctivitis is a rare disease involving in most instances but one eye. It is characterized by the formation of follicles and sometimes ulcers in the conjunctiva. A marked feature is the systemic condition, the patient at the onset having fever, chills and enlargement of the preauricular gland, which frequently goes on to abscess formation. The entire parotid region may be swollen and tender. Sometimes the retromaxillary and cervical glands are also involved. In addition to the follicles, the eyelids are swollen and hard, and the culdesac is often very red and edematous. The chills, fever and involvement of the glands differentiate this form of conjunctivitis from trachoma.

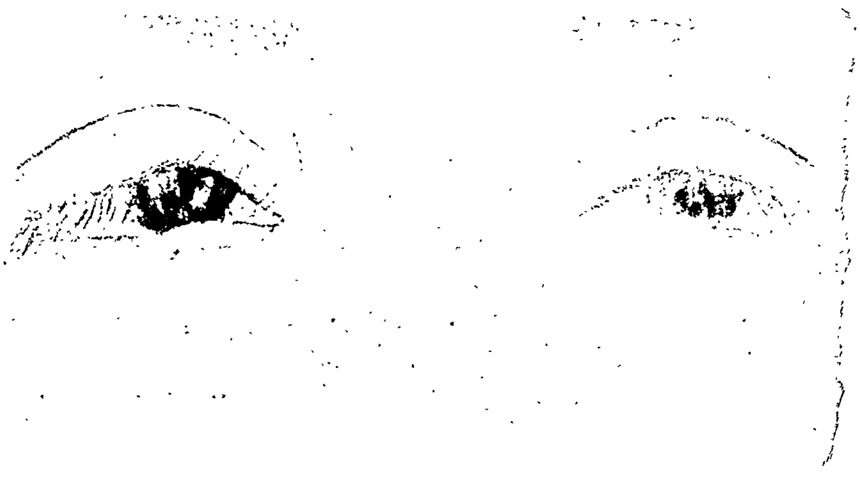

Fig. 12.—Thickening and deformity of the lids produced by a long standing case of trachoma. Note that the outer two thirds of the right upper lid presents a curve which is concaved downward, while the normal eye has its concavity upward.

WHEN IS TRACHOMA CURED?

On this point there is a great diversity of opinion. Patients attending clinics are often discharged as cured when acute inflammatory symptoms have subsided and there is no discharge. Such cases, however, almost invariably relapse sooner or later, and the mere cessation of secretion and the acute subjective symptoms should not be taken as proof of recovery from the disease. When an eye has become infected with the trachoma virus, it is liable to a recurrence as long as any normal conjunctiva, or any lymphoid tissue in the conjunctiva remains. The infection lingers in the granulations apparently indefinitely, and some trifling local irritation or constitutional disorder may cause it to spring into renewed activity at any time, and thus produce an acute exacerbation of the disease.

A case can never be said to be certainly cured until all the conjunctiva of the upper lids has become completely replaced by smooth, white, avascular, fibrous scar tissue, and the lower lids are free from any evidences of the disease. A vascular scar tissue cannot be infected by the virus of trachoma. In treating trachoma with silver nitrate, copper sulphate, grattage, expression, etc., the cicatricial process is simply hastened by chemical and mechanical destruction of the normal and abnormal tissue of the lids and the irritation resulting from these various measures.

THE ILLUSTRATIONS

It is extremely difficult to get good illustrations of trachoma, as there are several things which interfere with accurate reproductions of the conjunctiva. In order to show the diseased area to the artist it is necessary to evert the upper lid. This procedure is more or less uncomfortable to the patient, and the lid cannot be maintained in this position for a very long period of time. The appearance and color of the conjunctiva itself changes from moment to moment on account of the varying blood supply and the irritation produced by the eversion.

Long training is essential in order that the observer should be able to grasp and appreciate quickly the very minute pathologic changes by which the different inflammatory diseases of the conjunctiva are diagnosed. It is extremely important that in all cases the culdesac should be carefully brought into view by proper manipulation of the tip of the glove buttoner. In most of the illustrations the entire culdesac is shown, but it should be remembered that in the actual work the examiner can see only one part of the culdesac at a time. Hence, in actual practice, it is impossible to get as complete a view of the diseased structures as is shown in the pictures.

The black and white drawings were made by Artist Leonard H. Wilder of the United States Hygienic Laboratory, after paintings made by S. Shimatori of actual cases occurring in immigrants at the United States Immigrant Hospital at Ellis Island, New York. They are as correct reproductions of the conditions seen as the artists could portray.

The illustrations were made three times the original size in order that the finer details on which so much depends in the diagnosis of trachoma might not be lost in the process of reproduction. It is advised that they be studied, first of all with a minus lens of sufficient strength to bring them down to the size of a normal eyelid, in order to get the general effect, and afterward with the naked eye for the purpose of observing the finer details.

U. S. Immigration Station.

City Celebrates New Water Supply.—October 12, New York began its celebration of the completion of the Catskill aqueduct. This aqueduct is approximately 120 miles long and its construction has covered a period of ten years. It has been completed, however, within contract time, without a labor strike, and its cost has been kept within the original estimate. The opportunity offered by the completion of this great work for teaching important civic lessons is not being neglected. The great influence of water supply on the public health is being impressed in the school celebrations and public meetings. For this purpose a pamphlet has been prepared by the department of health at the request of the Mayor's Catskill Aqueduct Celebration Committee which is being used as a text for compositions on this subject.

CESAREAN SECTION SCARS

A HISTOLOGIC STUDY OF FOUR SPECIMENS *

ALFRED BAKER SPALDING, M.D.
SAN FRANCISCO

Originally the indications for cesarean section were limited, because delivery by laparotomy without suturing the uterus, although occasionally successful, nearly always resulted in death from hemorrhage. Suturing the uterus to prevent death from hemorrhage was followed so frequently by peritonitis that Jorg,[1] in 1806, suggested a method of extraperitoneal cesarean section which was in fact successfully performed by Ritgen,[1] in 1821. Rarely repeated cesarean section was successful in preantiseptic days, in cases in which the adhesions were sufficiently extensive to wall off the peritoneal cavity. Porro, in 1876, devised his operation for removing the uterus and suturing the cervix into the laparotomy wound. While the Porro operation greatly reduced the mortality of cesarean section, the removal of the uterus was considered to be too radical a procedure to permit of any marked increase in the list of indications for cesarean section.

But when Sänger, in 1882, described his well known conservative operation, the immediate results were found to be so good in regard to fetal and maternal mortality that the original small list of indications for cesarean section was greatly increased.

It has been estimated that today cesarean section is resorted to about once in each 200 confinements, which probably is a fairly conservative statement. In hospitals and clinics the ratio may at times be even greater. For instance, at the Stanford Women's Clinic, eighteen cesarean sections have been performed in the last 2,060 consecutive confinements, or, on an average, one cesarean section for each 115 confinements.

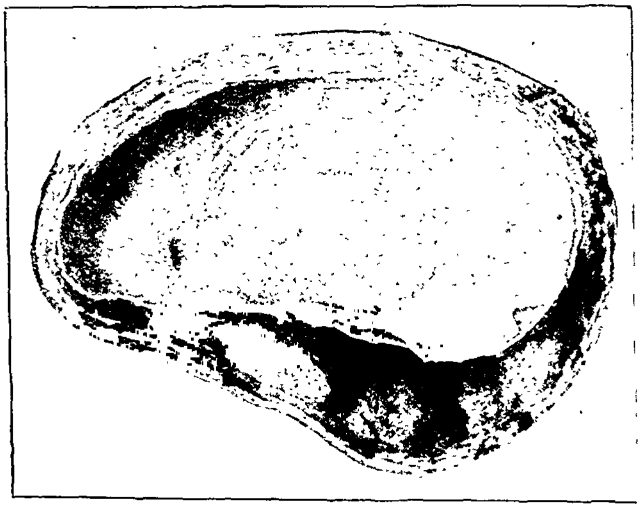

Fig. 1.—Cross section of the pregnant uterus at 18 weeks; wall outside placenta, 6 mm.; placenta, 22 mm.; wall under placenta, 5 mm.

The subsequent history of this large class of cesareanized women is a matter not only of scientific interest, but also of sociologic concern. The possibility of sterility, of abortions, of almost certain sterility after the second cesarean section, as well as future rupture of the uterus, must be thought of before resorting to the comparatively simple expedient of abdominal cesarean section, when possibly some other obstetric operation, such as pubiotomy or vaginal hysterotomy, might do as well and might give to the patient a simpler obstetric future.

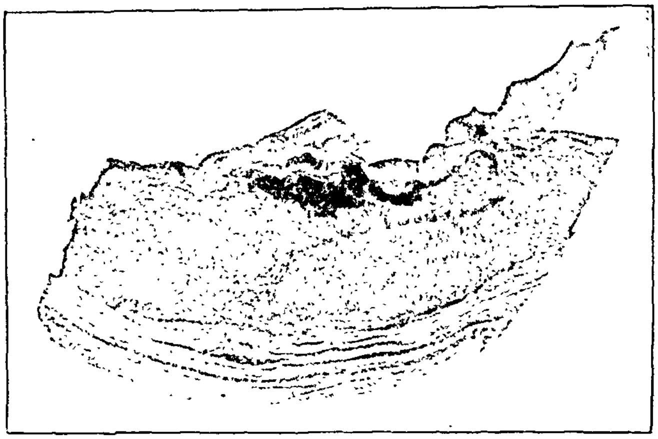

Fig. 2.—Placenta and uterine wall in first stage of labor: wall outside of placenta from 7 to 9 mm.; placenta, 22 mm.; wall under placenta, 6 mm.

After cesarean section, many patients have fever with more or less inflammation of the endometrium; many remain sterile after one cesarean section, either from choice, or because the operator has sterilized them; many abort after cesarean section spontaneously or are aborted through fear of future difficulties, while a relatively small number are repeatedly cesareanized. Some patients, after the classic Sänger or Fritsch operation, occasionally have a rupture of the uterus in succeeding pregnancies. Von Leuwin,[2] in 1904, and Singer,[3] in 1908, wrote valuable theses on this subject.

Weber,[4] in 1910, called attention to the fact that in the Münchner Frauenklinik the percentage of uterine ruptures had increased from one in 1,476 labors previous to 1899, to one in 697 labors since 1899. He attributes this increase in the number of ruptures to injuries to the uterus caused by previous operations, particularly to injuries caused by curettage in the puerperal period. Of twenty-eight ruptures during this operative period, one was through an old cesarean scar.

Krukenberg,[5] in 1886, reported twelve cases of rupture in twenty-four pregnancies after cesarean section.

Later Sänger stated that rupture had only rarely occurred after his operation, and that when it had occurred, it was because of poor technic on the part of the operator. As a result, the early reports of rupture dealt exclusively with cases in which some other operator performed the original cesarean section. However, Wyss,[6] in 1912, collected from the literature forty-three reports of rupture occurring

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* From the Division of Obstetrics and Gynecology, Leland Stanford Junior University School of Medicine.

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

[1] Quoted from Nürnberger: Zur Geschichte des Extraperitonealen Kaiserschnittes, Zentralbl. f. Gynäk., 1909, No. 33, p. 899.

[2] Von Leuwin: Herhaaldi sectio caesarea, Thèse d'Utrecht, 1904, and Ann. de Gynec. et d'obst., October, 1904, p. 577.

[3] Singer: Des cicatrices cesariennes abdominale classiques, Thèse de Paris, 1908-1909, p. 499.

[4] Weber, F.: Die Kompletten Uterusrupturen der letzten 50 Jahre an der Münchner Frauenklinik, Beitr. z. Geburtsh. u. Gynäk., 1910, **15**, 53.

[5] Krukenberg, G.: Beitrag zur Kaiserschnittfrage, Arch. f. Gynäk., 1886, No. 28, p. 409.

[6] Wyss, Albert: Beitrag zur Uterusruptur nach Kaiserschnitt, Beitr. z. Geburtsh. u. Gynäk., 1912, **17**, 336.

since 1895, and Palmer Findley[7] has recently increased this list to a total of sixty-three. In addition to these, the following ruptures may be found reported in the literature; Banby and Gilles,[8] Cristalli,[9] Baisch,[10] Mabbott,[11] Wyder,[12] Weber,[4] Cameron[13] (two cases), Lüsebrink,[14] Bell,[15] and Rongy[16] (two cases).

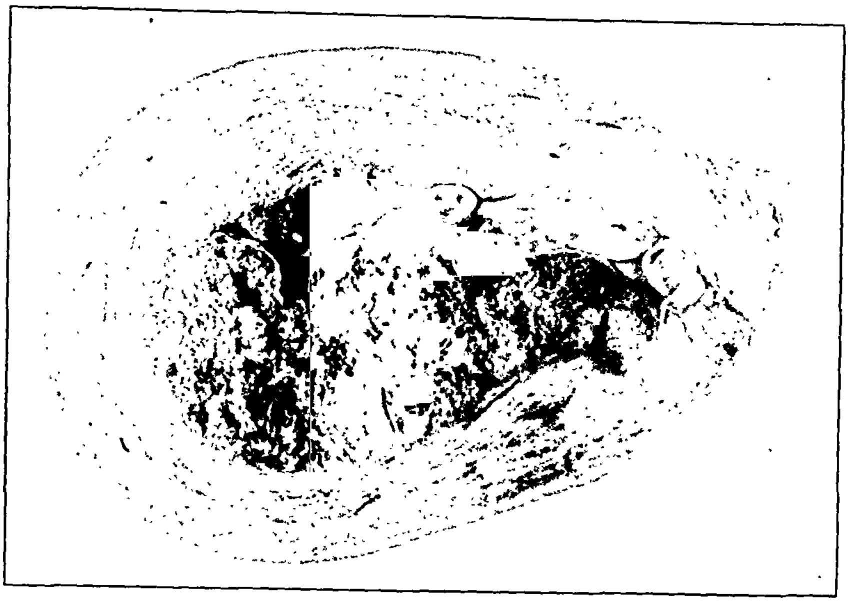

Fig. 3.—Sagittal section of the uterus and placenta in the third stage of labor: wall outside placenta, 28 mm.; placenta, 45 mm.; wall under placenta, 18 mm.

The frequency of rupture after cesarean section can at best be only roughly estimated. Couvelaire,[17] quoting from von Leuwin, made the statement, which is found so often in the literature, that rupture occurs in about 2 per cent. of pregnancies after cesarean section. As a matter of fact, von Leuwin stated in his thesis that 77 patients who became pregnant after cesarean section and were not treated by repeated cesarean section gave the following history: there were 8 spontaneous, and 3 artificial abortions, 6 ruptures of the uterus (dans la cicatrice ou ailleurs [in the cicatrix or elsewhere]), 22 prematurely induced labors, 21 spontaneous labors at term, 3 symphysiotomies, 3 embryotomies, three extractions with forceps, and 2 versions with extraction. In the paragraph following, he states that of a total of 194 pregnancies, including 117 repeated cesareans with the 77 previously mentioned, there were noted 24 defective scars. Of these, 4 were completely ruptured, 14 were defective to the peritoneal coat, and 6 were partly defective. From the first paragraph, one might conclude that there were 6 ruptures in 66 cases (by excluding the abortions) or more than 9 per cent. of ruptures. Or, from the second paragraph, one could agree with Couvelaire that the number of ruptures were four in 194, or about 2 per cent. However, the percentage (12) of defective scars agrees very well with the findings recently reported by Harrar.[18] Of 50 cases of repeated cesarean section at the New York Lying-In Hospital, there were noted 8, or 16 per cent. of defective scars.

Of forty cesarean sections in private practice or in my clinic, only one patient to my knowledge has had spontaneous labor later. This patient, reported by Breitstein,[19] had one normal spontaneous labor, and then the uterus ruptured spontaneously in the last month of the next pregnancy.

Laparotomy was performed by Breitstein twenty-four hours after the occurrence of the rupture, because the patient complained so little as to obscure the diagnosis. The uterus was found ruptured on the anterior wall in the old cesarean scar. The placenta lay outside on the anterior wall of the uterus. Around the edge of the rupture, there was an intense leukocytic infiltration in the decidua. The upper part of the rent was covered by the decidua vera. Around the central and lower parts, the decidua had the appearance of the serotina. The muscle in the upper part toward the peritoneum was normal.

Of the seventy-five reported cases in the literature, in only eighteen are there pathologic reports of the histology of the scars. Of these, two authors (Ekstein[20] and Breitstein[19]) report syncytial elements in the scars with good muscle healing; seven (Schick,[21] Couvelaire,[17] Dahlmann,[22] two cases, Fischer,[23] two cases, and Wyss[6]) report finding

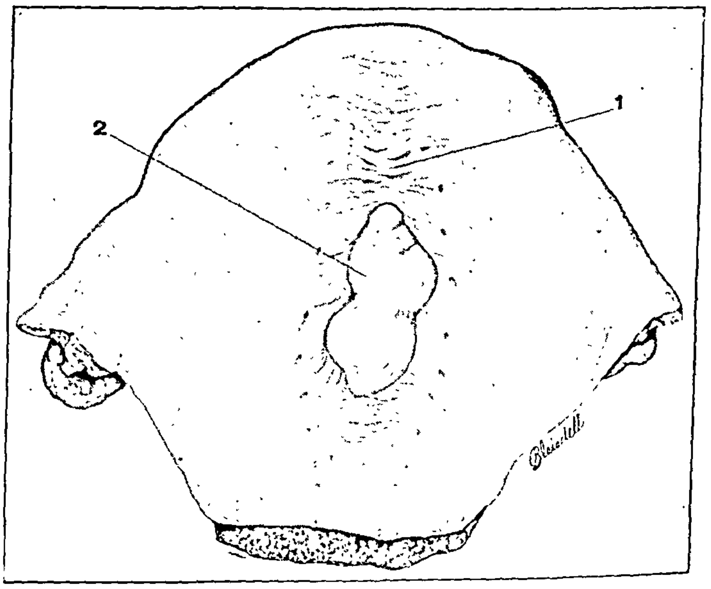

Fig. 4.—Drawing of hypothetic case to illustrate the author's idea of the cause of uterine rupture in defective cesarean section scars; *1*, defective scar; *2*, liquor amnii in membranes rupturing scar *on* principle of water edge.

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[7] Findley, Palmer: Rupture of the Scar of a Previous Cesarean Section, Am. Jour. Obst., 1916, **74**, 411.

[8] Banby and Gilles: Arch. méd. de Toulouse, 1903, No. 21, p. 243.

[9] Cristalli, G.: Arch. di ostet. e. ginec., 1906, No. 12.

[10] Baisch, K.: Uterusverletzungen und Schwangerschaftsruptur, Zentralbl. f. Gynäk., 1904, **59**, 1537.

[11] Mabbott: Second Cesarean Section (by Dr. Tull) on a Patient with Rupture of the Uterus at Site of the First Operation, Am. Jour. Obst., 1906, **54**, 853.

[12] Wyder: Cor.-Bl. f. schweiz. Aerzte, 1905, **35**, 427.

[13] Cameron, J. M.: Demonstration of Specimen of Rupture After Cesarean, Edinburgh Med. Jour., 1911, **75**, 378.

[14] Lüsebrink (Discussion on demonstration by Everke, Monatschr. f. Geburtsh. u. Gynäk., 1913, **37**, 238) reports a case of rupture after using bags in premature labor two years after cesarean section. There was an atrophic scar.

[15] Bell, J. N.: Rupture of the Uterus in Cesareanized Women, with a Review of the Literature on This Subject to Date, Am. Jour. Obst., 1916, **74**, 950.

[16] Rongy, A. J.: Rupture of the Cesarean Scar, Am. Jour. Obst., 1916, **74**, 954.

[17] Couvelairc, A.: Rupture de la cicatrice d'une ancienne opération cesariénne survenue a la fin d'une grossesse complique d'hydramnios, Ann. de gynec. et d'obst., Series 2, 1906, **3**.

[18] Harrar, James: A Study of the Integrity of the Uterine Scar After Cesarean Section, Am. Jour. Obst., 1912, **65**, 808.

[19] Breitstein, L. I.: Rupture of the Uterus Following Cesarean Section, The Journal A. M. A. Feb. 28, 1914, p. 689.

[20] Ekstein, E.: Die erste Spontanruptur des graviden Uterus im Bereiche der alten Kaiserschnittnarbe nach querem Fundalsschnitte nach Fritsch, Zentralbl. f. Gynäk., 1904, **44**, 1302.

[21] Schick, P.: Ueber einen Fall von Uterusruptur nach vorangegangenem klassischen Kaiserschnitt, Deutsch. med. Wchnschr., 1911, **37**, 1690.

[22] Dahlmann, Albert: Zerreissungen der Gebärmutter nach Kaiserschnitt, Monatschr. f. Geburtsh. u. Gynäk., 1910, **32**, 33.

[23] Fischer, O.: Ueber die Ruptur des graviden Uterus in einer alten Kaiserschnittnarbe, Ztsch. f. Geburtsh. u. Gynäk., 1912, **70**, 838.

placental elements in poorly healed scars. Two (Prüsmann[24] and Jolly[25]) found decidual islands in the scar as the sole cause of rupture, and Wolf[26] reports the same finding associated with poor muscle healing. In addition, many state that the decidua approaches, as one would expect, to the peritoneum over the surface of poorly healed scars. Of the eighteen reports, thirteen record poor wound healing as the chief cause of rupture. Clinically, vomiting in late pregnancy, cervix bags, bougies, hydramnios, overtime fetus, ulcerating ventral hernia, long labor without engagement, manual extraction of the placenta, abdominal fixation of the uterus, version and pituitary solution have been noted to explain the rupture, while several cases are reported without strain of any kind and with few of the usual symptoms of uterine rupture. Some have been found unexpectedly at operation. Couvelaire thought the rupture in his case occurred to one side of the old scar through the uterine muscle, which agrees with the clinical reports by Krukenberg[5] and Davis,[27] and with the opinion of Mason and Williams,[28] based on animal experiments.

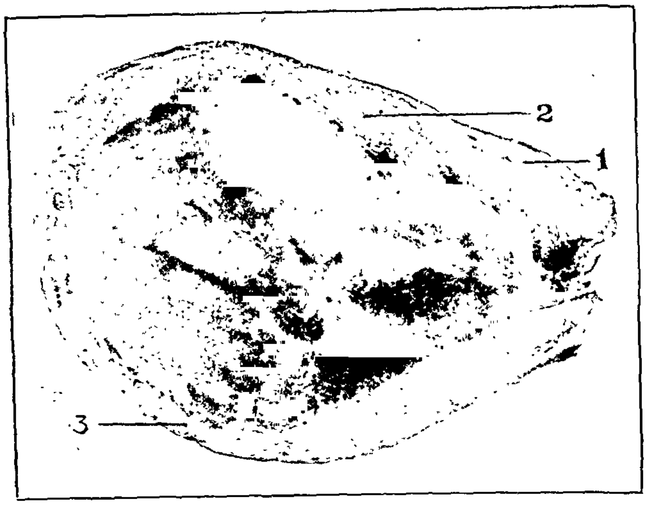

Fig. 5.—Sagittal section of the uterus and placenta with rupture of the uterus at site of old cesarean section scar: *1*, thickened lower uterine segment, 21 mm.; *2*, placenta, 15 mm. thick; *3*, point of rupture, old scar, 2 mm.

From 1895 to 1900, when the classic Sänger operation was in universal vogue, only three cases of rupture were reported. From 1900 to 1911, during the time when many resorted to the transverse fundus incision of Fritsch, forty cases of rupture were reported. Wyss condemned all operations except the Sänger operation, and believed the ruptures were due to infection and to poor technic. Several have mentioned that in the fundus, the postpartum contractions may loosen the sutures, and result in poor wound healing. German literature is full of good results following the extraperitoneal operation. Lichtenstein,[29] Reinhardt,[30] Scheffzek,[31] Rubeska[32] and Mayer[33] have reported labors lasting from five to sixty-eight hours without rupture, while Unterberger[34] states that no case has yet been reported of rupture following the extraperitoneal operation. However, Wolf[26] reports a case of rupture after a transperitoneal operation, and Labhardt[35] encountered rupture in a case of placenta praevia following delivery by Dührssens incisions in a previous confinement. In Findley's list of sixty-three ruptures, ten make mention of the placental site at the time of the first cesarean section. Of these, eight incisions were made into the placenta. Twenty-two mention the placental site at the time of rupture. Of these, nineteen find the placental site in or near the rupture.

It has frequently been suggested that the incising of the placental site might lead to imperfect healing of the regenerating endometrium, as well as the possibility of the developing placental elements weakening the scar, as happens in some cases of ectopic pregnancy. Both these facts could account for the better prognosis following extraperitoneal cesarean section.

While it is plausible that the placental elements might lead to poor healing of the wound in cases in which the incision is into the placental site, there is hardly sufficient evidence available to uphold the idea that the syncytium will attack sound scar tissue any more than it does sound uterine tissue. To verify this, we studied the uterus in a girl who died when she was eighteen weeks pregnant, and found that the wall was 6 mm. thick, the placenta 22 mm. in thickness, while the thickness of the wall underlying the placenta was 5 mm. (Fig. 1). The histology of the muscle wall differed from cesarean scars in being of looser texture, containing many more small blood vessels, less fibrous tissue, and no fibrin, except in the

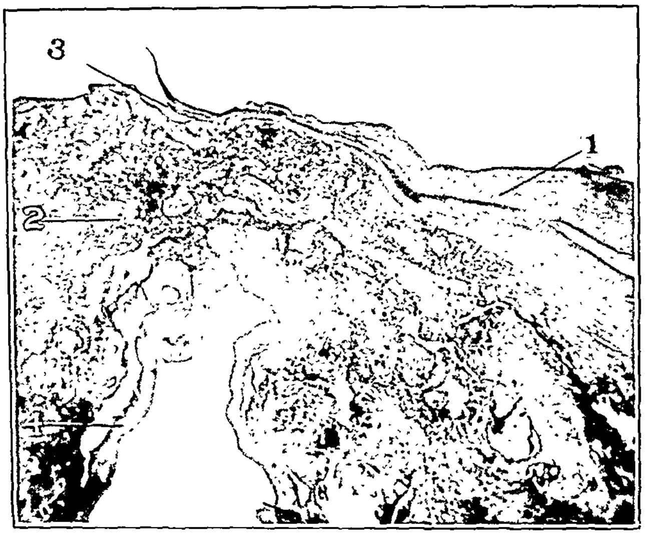

Fig. 6.—Low power photograph at point of rupture in Figure 5: *1*, muscle wall; *2*, placenta; *3*, point of rupture; *4*, amnion.

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[24] Prüsmann, F.: Die Spontanruptur in der alten Kaiserschnittsnarbe, Ztschr. f. Geburtsh. u. Gynäk., 1905, **55**, 415.

[25] Jolly, R.: Uterusruptur in der alten Kaiserschnittsnarbe, Arch. f. Gynäk., 1912, **97**, 229.

[26] Wolf: Demonstration-Gesellschaft für Geburtschülfe und Gynäkologie zu Berlin, Ztschr. f. Geburtsh. u. Gynäk., 1914, **75**, 740.

[27] Davis, A. B.: Cesarean Section: A Study of a Consecutive Series of Cases, Tr. Am. Assn. Obst. and Gynec., 1913, **26**, 37.

[28] Mason and Williams: The Strength of the Uterine Scar After Cesarean Section: An Experimental and Clinical Study, Boston Med. and Surg. Jour., Jan. 20, 1910.

[29] Lichtenstein: Extraperitonealer Kaiserschnitt und Uterusrupturgefahr bei späteren Entbindungen, Zentralbl. f. Gynäk., 1910, No. 26.

[30] Reinhardt, J. C.: Bericht über zehn suprasymphysäre Kaiserschnitte, Gynäk. Rundschau, 1910, No. *24*.

[31] Scheffzek, Franz A.: Die Uterusnarbe des korporealen und cervikalen Kaiserschnitts und ihre Chancen bei späteren Schwangerschaften and Geburten, Ztschr. f. Geburtsh. u. Gynäk., 1910, **67**, 752.

[32] Rubeska, W.: Wiederholter suprasymphysärer Kaiserschnitt, Zentralbl. f Gynäk., 1910, **35**, *1164*.

[33] Mayer: *Zur Kasuistik des wiederholten* suprasymphysären Kaiserschnitt, München. med. Wchnschr., 1911, **24**, 1306.

[34] Unterberger: Spontane Uterusruptur nach Sectio cesarea, Monatschr. f. Geburtsh. u. Gynäk., 1911, **34**, 372.

[35] Labhardt, *Alfred:* Ueber Uterusrupturen in Narben von früheren Geburten, Ztschr. f. Geburtsh. u. Gynäk., 1904, **53**, 478.

decidua, where the chorionic elements formed attachment. The wall of the uterus in a woman dying in the first stage of labor (Fig. 2) measured from 7 to 9 mm. in thickness, except at the placental site, where it measured 6 mm.

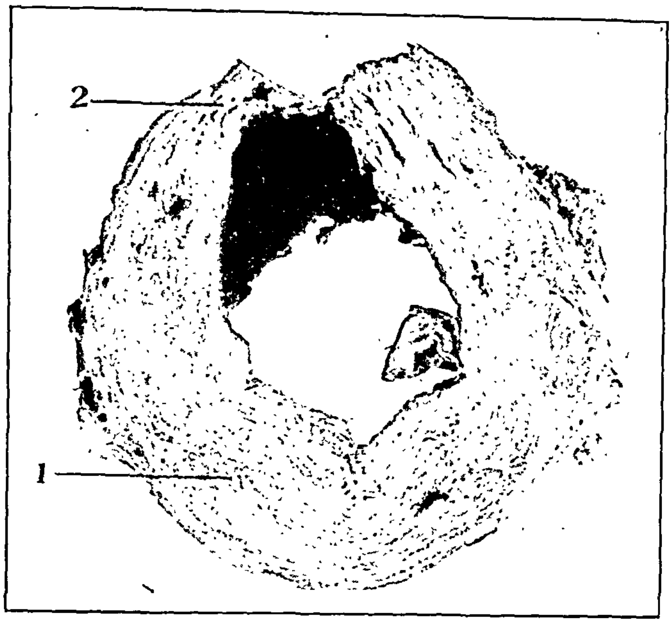

Fig. 7.—Cross section of uterus showing fresh cesarean incision and old cesarean section scar; good healing: *1,* muscle wall, 26 mm.; *2,* old scar, 9 mm.

From a Porro-cesarean section case (Fig. 3), the thickness of the uterine wall in the third stage of labor was found to be 28 mm. outside the placental site, and 18 mm. beneath the placenta. The thickness of the wall in the nonpregnant state was observed to be about 17 mm.

From these observations, it appears that the normal uterine muscle wall is somewhat thinner beneath the placenta than it is at other places, and it might be argued that a sound cesarean scar over the placenta would be thinned in the same proportion; but there is no histologic evidence to prove that the normal uterine wall or the well healed scar is weakened by the invasion of syncytium, such as occurs in mole pregnancy and in ectopic gestation.

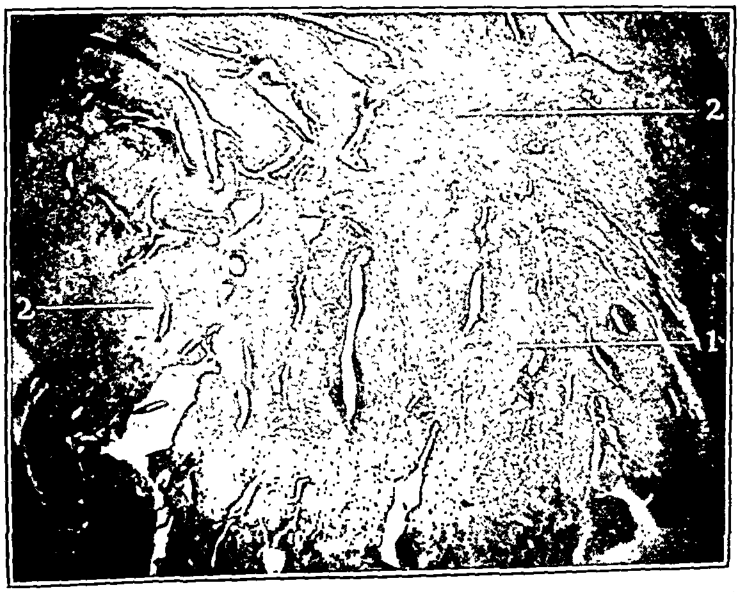

Fig. 8.—Low power photograph of old scar in Figure 7: *1,* normal muscle tissue; *2,* scar shows fibrous tissue; few muscle cells.

Histologically, the strong well healed scar is practically no different from normal uterine tissue. Defective scars, however, contain more fibrous tissue, fewer blood vessels, less muscle tissue, less elastic tissue, and when in contact with the placenta, more fibrin deposits. The placenta may actually protect a weak scar by acting as a splint to cover the wall defect. On the other hand, a small retroplacental hemorrhage might rupture the uterus. The most plausible reason to explain actual rupture of the uterus seems to rest on mechanical principles. Given a weak scar defective near to the peritoneal coat, a small water wedge of liquor amnii (Fig. 4) will cause the uterus to rupture, on the same principle that it causes the cervix to open. Scars in the lower uterine segment are protected more than scars in the fundus from this action. Using a cervix bag which increases the intra-uterine pressure will cause added danger. In the third stage of labor, retroperitoneal hemorrhage might well cause rupture.

In this connection I desire to report the following histologic findings of cesarean section scars:

REPORT OF CASES

Case 1.—*History.*—A white woman, aged 32, was examined in consultation at an outside hospital, Sept. 13, 1916. The patient was in her third pregnancy. In 1914, the cervix had been amputated. The first labor occurred five years ago and it was a high forceps delivery, the child being delivered dead. The second labor took place three years ago, at which time a cesarean section was performed by a general surgeon; no fever occurred during the puerperium. The present labor was due Sept. 2, 1916, and the three measurements of the pelvis which had been taken were normal. The promontory was high and was palpated with difficulty; the pubic angle was acute. Labor began September 12 at 1 a. m. with strong pains. The position was breech, and at 1 p. m., September 13, the membranes ruptured and meconium was noted in the liquor amnii. The pains stopped, and 0.5 c.c. of pituitary solution was given, causing hard pains. At 2:10 p. m., under ether, the attending physician attempted to deliver the child by breech extraction, but could not extract the head. At this point the history is vague, but the result was that the body was severed, leaving the head in utero. At 7 p. m. the patient was moribund, with rapid pulse and continuous, although moderate, bleeding from the vagina. As there were no craniotomy instruments to be had in the hospital, and as it seemed probable that the uterus containing the fetal head was both ruptured and septic, an immediate hysterectomy was done. There were many adhesions on the anterior surface of the uterus, but no rupture of the cesarean scar appeared to

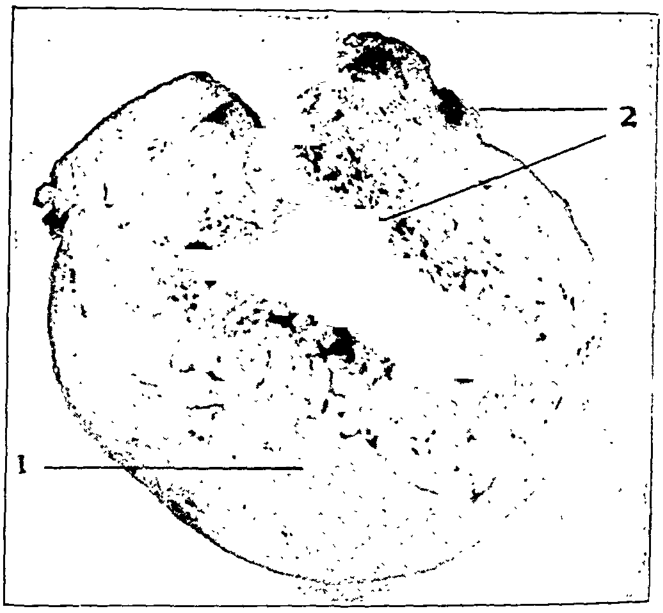

Fig. 9.—Cross section of uterus showing fresh cesarean incision and old cesarean section scar, good healing: *1,* muscle wall, 55 mm.; *2,* old scar, 28 mm.

be present in spite of the severe twenty-four hour labor and the use of pituitary solution. The patient died shortly after operation. After a delay of several weeks, I was able to obtain the specimen of the uterus for study. Unfortunately, the fixation of the large specimen was poor.

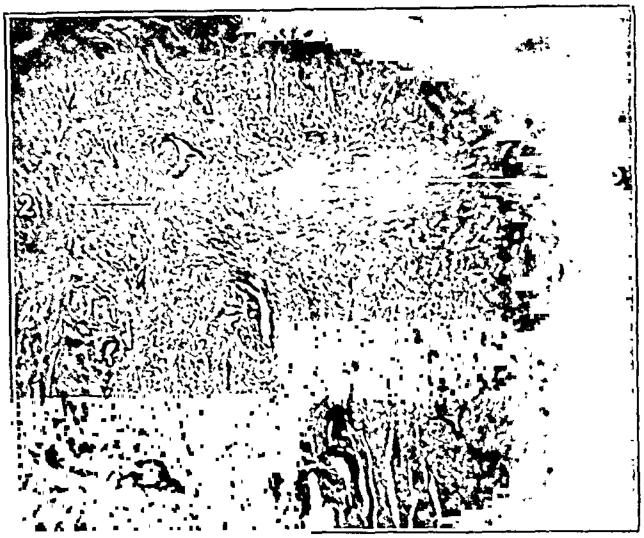

Fig. 10.—Low power photograph of old scar in Figure 9: *1*, normal muscle tissue; *2*, *2*, scar is practically the same as the normal uterine wall except for slight deposit of fibrin.

Pathology.—The specimen consisted of the uterus above the internal os (containing a large fetal head), right ovary and tube. There were many adhesions over the anterior and left lateral surfaces of the uterus. The uterus measured 18 cm. transversely at the line of tubal insertion; 14 cm. anteroposteriorly, and had a length of 22 cm. On the posterior wall of the uterus on the fundus just above the line of insertion of the fallopian tubes, there was an irregular white scar, 2.5 cm. wide and about 8 cm. long, which ran transversely and a little downward from left to right. The scar seemed to be held together and protected in a splintlike manner by the attached placenta beneath. The placenta had a very large attachment over the anterior wall, fundus, and part of the posterior wall of the uterus. The wall of the uterus was thickened to 22 mm. in the lower part of the uterus, extending posteriorly to a distance of 15 cm. (just to the old uterine scar), and 10 cm. on the anterior wall above the internal os. Beneath these points over the fundus, the wall was thinned to 5 mm., except at the site of the scar, which is 2 mm. The attached placenta was 15 mm. thick (Fig. 5).

Microscopic Examination.—Sections of the uterine wall revealed fairly distinct layers of normal muscle tissue with a thin layer of decidua. The placenta was in situ, and the villi were normal. At one point, the muscle tissue thinned out to a hairlike line, beneath which there was a layer of hemorrhage which overlay the proliferating villi. In places, the thin peritoneal coat was ruptured. This was at the site of the old cesarean incision. Beyond this, the muscle wall again thickened. In the scar, distinct muscle bundles were lacking and had been replaced with wavy fibrillar connective tissue (Fig. 6).

Case 2.—*History.*—A white woman, aged 20, had a simple, flat contracted pelvis, the true conjugate measuring 7 cm. Labor was due Sept. 5, 1913, but the pains began August 23. It was a breech presentation, and the fundus measured 30 cm. above the symphysis, the presenting part being above the brim. The patient preferred the cesarean section to pubiotomy. At the operation, the incision was made in the midline below the umbilicus, and the uterine incisions in the midline on the anterior wall of the uterus into the placenta. The incision in the uterus was closed with two layers of interrupted chromic catgut (avoiding decidua), and one layer of continuous sutures. Lembert chromic suture was used in the peritoneum. Convalescence was normal, and no fever developed. Jan. 11, 1916, this patient returned to the clinic in labor with a vertex presentation. The fundus measured 34 cm., and the presenting part was above the brim. After nine hours of good labor pains without engagement of the presenting part, a Porro-cesarean section was done, as the patient requested sterilization.

The uterine incision was made in the midline on the anterior wall of the uterus into the placenta; the old incision was not visible. Convalescence was normal, and there was no fever.

Pathology.—The uterus measured 14 by 10 by 10 cm. There were no adhesions. The old scar was to the left of the recent incision and the wall was thinner and somewhat puckered. The wall of the uterus outside the old scar was 26 mm., while the scar measured 9 mm. (Fig. 7).

Microscopic Examination.—The scar showed much fibrous tissue with practically no muscle cells. There were a few blood vessels in the scar, but no decidual or syncytial elements were present. With Weigert's stain, the normal elastic elements seen in the muscle tissue were lacking in the scar. The scar appeared strong, although fibrous and shrunken (Fig. 8).

Case 3.—*History.*—A white woman, aged 25, had a flat, rachitic pelvis. The true conjugate measured 9 cm., and between the tubera ischii, 7.5 cm. The patient was delivered by cesarean section in the Cooper College Clinic, April 12, 1912. Interrupted catgut sutures and continuous Lembert sutures in the peritoneum were used. Convalescence was normal except for a fever of 101.6 F. on the day of operation. Nov. 16, 1916,

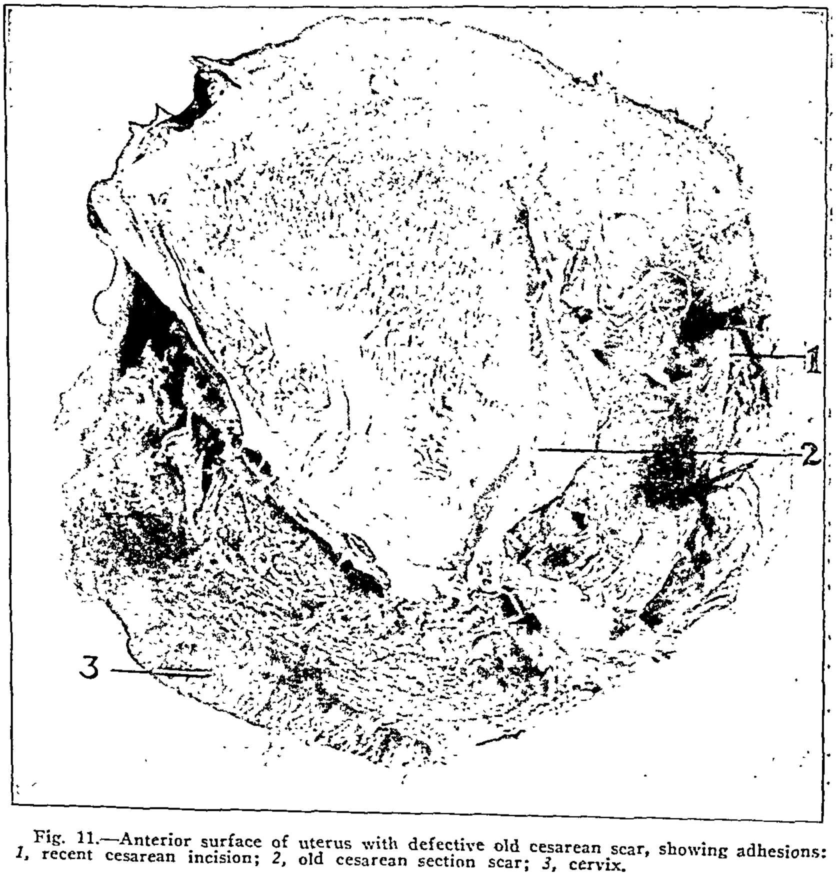

Fig. 11.—Anterior surface of uterus with defective old cesarean scar, showing adhesions: *1*, recent cesarean incision; *2*, old cesarean section scar; *3*, cervix.

this patient reported to the Stanford Clinic in labor. The fundus measured 34 cm. above the symphysis. It was a breech presentation, but no engagement had as yet occurred, although the membranes were ruptured. After two hours of pains, the patient was delivered by Porro-cesarean section, as she requested sterilization, and the membranes had been ruptured since labor began. Incision was made through the right rectus below the umbilicus. There were adhesions between the uterus and the anterior wall. The uterine incision was made on the anterior wall. The placenta was located on the posterior wall of the uterus. Convalescence was normal, except for temperature of 101 F. on the first day and the eleventh day.

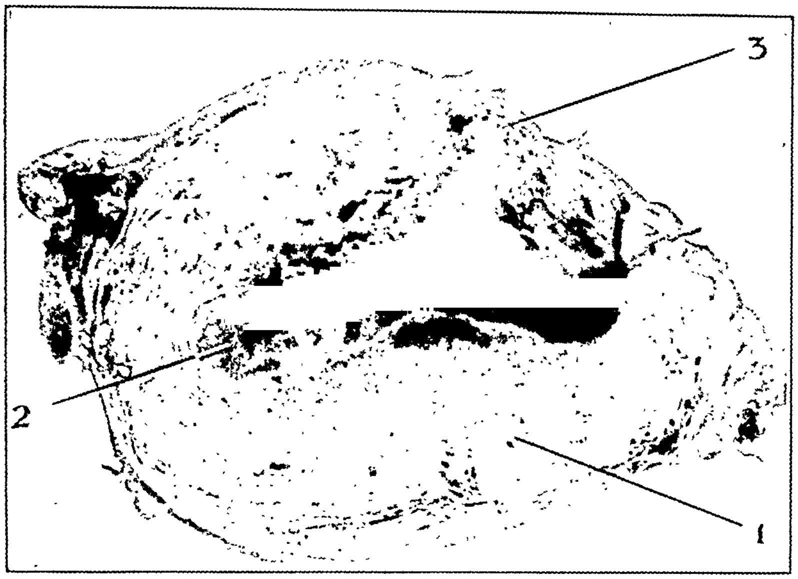

Fig. 12.—Sagittal section of the uterus shown in Figure 11, with defective old cesarean section scar: *1,* muscle wall, 38 mm.; *2,* decidua, 6 mm.; *3,* defective scar, 1.5 mm.

Pathology.—The uterus measured 11.5 by 11 by 9 cm. There were no adhesions except at the line of the old scar, which was 4.5 cm. long. The scar on the upper part of the anterior surface was in the midline, and the uterine wall in its thickest part was 55 mm. The endometrium was thick and shaggy; the scar was 28 mm. thick. The placenta was inserted on the posterior wall (Fig. 9).

Microscopic Examination.—The scar was the same as the other muscle tissue, except for slight fibrin changes and slight depression in the mucous membrane. It was stained with the van Gieson stain, hematoxylin and eosin stain and with the Weigert stain for elastic tissue. In part the muscle fibers were not quite so compact, but the amount of elastic tissue was about normal (Fig. 11).

Case 4.—*History.*—A white woman, aged 26, pregnant for the second time, came to the Stanford Women's Clinic, Sept. 7, 1916, in the seventh month of pregnancy. Twenty-one months previously she had had cesarean section at term performed by a surgeon in Sacramento, after twenty-four hours of labor. The pelvis measured 24, 26, 29.5, 21 and 20 cm. The laparotomy scar extended from the ensiform around the left side of the umbilicus to a point midway between the umbilicus and symphysis. A ventral hernia occupied the line of the old incision. No history of the convalescence was available.

A Porro-cesarean section with repair of the hernia was performed, Dec. 5, 1916, at the request of the patient that she be sterilized. There were very few light adhesions encountered. The uterine incision was in the anterior wall to the left of the old scar, and the placenta was on the anterior wall of the uterus. Convalescence was normal except for a temperature of 101 F. on the day of operation.

Pathology.—The uterus, consisting of body and fundus to the internal os, measured 15 by 13 by 8 cm. The old scar was blue, 8 cm. long, 1.5 mm. thick and 15 mm. wide. The wall of the uterus opposite the old scar was 38 mm. thick, and the mucous membrane was 6 mm. thick (Fig. 12).

Microscopic Examination.—Sections of the scar revealed a thin layer of peritoneal tissue with attached adhesions. Beneath this layer, there was a very thin layer of muscle tissue, but no fibrous tissue. There was a thin layer of decidua containing much fibrin, and attached to this was the placenta. On either side of the scar, there was much fibrin deposit enclosing decidua, fetal cells and muscle fibers. There were many masses of syncytium to be seen some distance away from the scar between the muscle bundles. There was about the same amount of elastic tissue in the scar as in the muscle tissue on either side. This was mostly associated with small blood vessels (Fig. 13).

CONCLUSIONS

1. It seems justifiable to conclude that more than 10 per cent. of cesarean section scars are defective.

2. The chief cause for the defect seems to lie in imperfect healing of the endometrium.

3. In case the incision is into the placental site, there may be imperfect healing due to the degeneration of decidua serotina, or the scar may be weakened by the inclusion of decidual tissue in the muscle wall.

4. There is not much evidence to uphold the view that the syncytium attacks the well healed scar, although two such cases have been reported.

5. The placenta is frequently found overlying the weakened scar in cases of rupture. This may produce rupture from retroplacental hemorrhage, or may act as a splint to support the weakened scar.

6. Of seventy-five reported cases, all but one were ruptures in the upper part of the uterus. From this it seems that the extraperitoneal cesarean section carries with it a better prognosis than the classic abdominal operation.

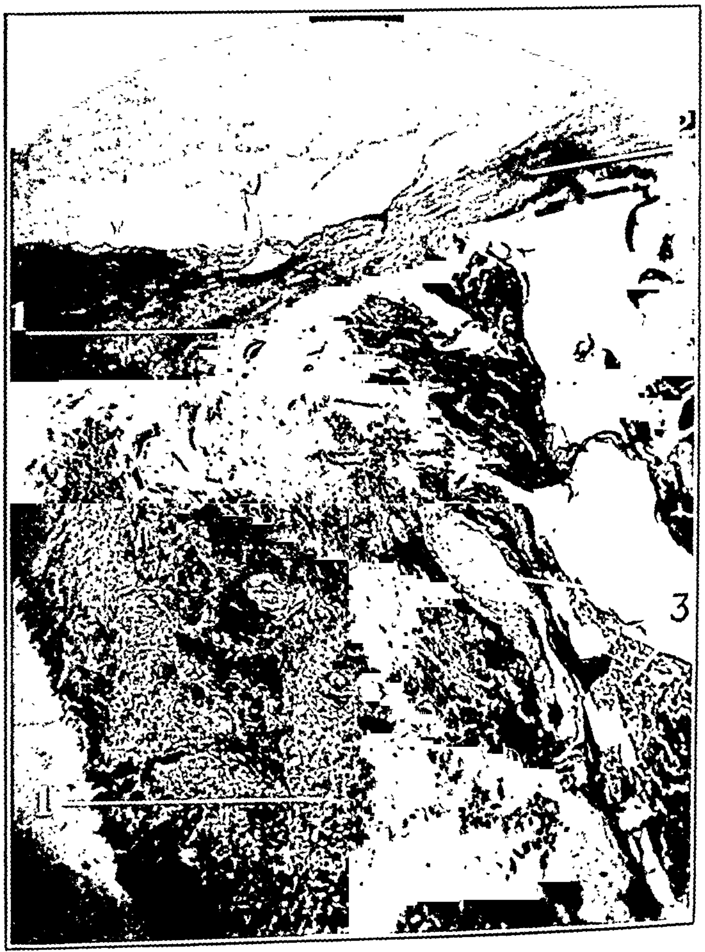

Fig. 13.—Low power photograph of old scar in Figure 12: *1,* normal muscle tissue; *2,* scar shows peritoneal coat with very thin layer of muscle tissue covered with decidua; *3,* placenta on scar.

7. Rupture of the uterus is probably produced by the increased intra-uterine pressure forcing a water wedge into the defective scar.

8. Although well healed scars can withstand the strain of future labors, the frequency of rupture after cesarean section is so much greater than uterine rupture from other causes that the indications for cesarean section should not include such patients as can just as well be treated by the induction of labor at term, pubiotomy, vaginal hysterotomy, or other well known obstetric operations.

Lane Hospital.

ABSTRACT OF DISCUSSION

Dr. J. R. Losee, New York: During the past four months at the New York Lying-In Hospital we have made a histologic examination of a series of cesarean section scars. This work was undertaken to determine, first, if uterine muscle would completely regenerate after being incised, and second, the actual cause of rupture late in a succeeding pregnancy. In this series the tissue was obtained from nine cases in which there was a complete or a partial rupture of the uterus, and from eleven in which the incision was made either through the old scar or adjacent to it at the subsequent operation. Of the nine cases of rupture, two presented a utero-abdominal fistula, in seven the whole scar was laid open, and in three of these the placenta and fetus were in the peritoneal cavity. There was no fat in any of the muscle cells. Of the eleven excised scars, five were moderately strong, and in four of these the placenta was attached directly beneath the wound, which fact suggests that the location of the placenta has little effect on the scar, providing there was firm union after the preceding section. There were six cases which presented rather thin scars, and the location of the placenta was equally divided, three being observed on the posterior wall and three on the anterior wall. From this series I have formulated the following conclusions:

1. The strength of the uterine scar after cesarean section depends on the absence from the wound of infection and foreign material, and on the perfect coaptation of the incised surfaces.
2. A perfectly healed wound leaves the myometrium as strong after operation as before, as far as can be determined by the histologic examination of the tissue in the line of the former incision.
3. A continuous suture in the myometrium adjacent to the decidua may assist in preventing the separation of the cut surfaces by blood clot or lochia in addition to the usual interrupted suture through serosa and myometrium.
4. The placenta in a subsequent pregnancy has little or no effect in weakening the firmly united scar, but if the scar is already weak it may accentuate this weakness.
5. Other than a small amount of fibrous tissue beneath the peritoneum, the myometrium in line with the former incision contains no scar tissue and the uterine muscle regenerates.
6. Rupture invariably takes place through the site of the former scar, and not through the adjacent muscle tissue.
7. Without definite means of estimating the strength of the uterine scar after cesarean section, subsequent pregnancies must be repeatedly observed as they approach term.

Dr. Asa B. Davis, New York: From all parts of the obstetric world reports are accumulating of rupture of the uterus in labors subsequent to former cesarean delivery. One important factor in the lack of strength and proper union in uterine wounds is the absence of muscle sheath, on which we depend so much for strength in other lacerations, as, for instance, in abdominal closure. Another important factor is the uneven thickness, at times, of the uterine muscle, partly due to the retraction and contraction of the uterus. Many times the edges of the uterine wound are of even thickness on both sides. Then accurate apposition and closure by sutures is possible. We see cases, however, in which one side of the uterine wound may be an inch or more in thickness while the opposite side may be one third as thick in places. Here accurate apposition is impossible. Another cause of thin scar may be found in the attempt to secure close approximation; too great tension is made on the sutures. In the healing process these sutures cut into the soft muscle and allow separation, usually more on one side of the uterine cavity. Considerable tension must be made on the sutures, otherwise there is failure of apposition throughout the whole thickness of the edges of the wound.

We find a considerable number of women in active labor subsequent to cesarean section, and often the placenta in these cases is located under the entire length of the former cesarean scar, and yet rupture of the uterus has not taken place. It is doubtful if rupture of the uterus is due to fault in any particular technic in suturing the uterine wound, because no two operators use exactly the same technic, and yet many different operators are reporting cases of rupture of the uterus in labors subsequent to cesarean delivery. Some operators feel sure that their particular method of suturing the uterus is a successful one. I had as much reason to feel that way as any one until after my thirty-ninth cesarean section. Then a rupture through the uterine scar occurred. Since then seven or eight others have been added to my list. All but one have been hours in labor; one mother died.

Dr. James A. Harrar, New York: There is no question that the uterine scar is often an unknown factor in a succeeding pregnancy. We must reduce that factor (1) by avoiding the classical operation when infection is suspected; (2) by proper care in suturing the uterine incision. Rupture occurs in a weakened scar, and it is weak because the original wound sloughed, or because it was not properly sutured.

Dr. Spalding's photomicrographs are valuable because such studies are rare. But I cannot admit that they prove that the syncitial cells erode the scar, comparable to the erosion in a ruptured ectopic pregnancy. The scars were thin, some only peritoneum and mucous membrane. There was an excavation on the under surface because of poor union. But the placenta simply grew into and filled the excavation; it did not make it. Its location under the scar was merely a coincidence.

On the first division at the New York Lying-In Hospital there has been but one rupture in sixty repeated cesarean sections. A thinned scar occurred nine times. In thirty-five the scar was solid, and in fifteen additional it was not materially defective. In six with normal scar the placenta lay directly under the second incision.

Sometimes we have to suture a contracted uterus whose walls are an inch or an inch and a quarter in thickness; here the sutures must be tied firmly. Sometimes, despite ergot and pituitary extract, the uterus remains relaxed and the wall thin. Here the sutures must be tied more loosely to permit of the thickening of the tissue in the grasp of the suture when the uterus contracts down.

Carefully identify and approximate the deeper edges of the incision. The deeper edges tend to retract away from the operator's attention. Do not take too wide a bite with the running suture in the visceral peritoneum, as very wide folds of peritoneum pulled across the line of deeper sutures cause the inner edges of the wound to gape.

In repeated cesarean sections it is better to excise the old uterine scar, whether it is solid or not. A parallel incision would give us two points of doubt in a still later pregnancy, and besides, suture of scar tissue is always poor surgery.

Dr. Nathaniel R. Mason, Boston: In 1910 I carried out a series of experiments with Dr. John T. Williams on pregnant cats and guinea-pigs in the laboratory of surgical research of the Harvard Medical School, with the object of determining the relative strength of scar and uterine wall. The following method was employed: a cesarean section was performed on a pregnant animal. Then, after a period had elapsed equal to the length of pregnancy for the given animal or near the end of a second pregnancy, the animal was killed and a section of the uterine wall containing the scar tested by suspending weights to it. These weights were gradually increased until rupture of the tissue was produced. It was found that rupture invariably took place in the uterine muscle and not in the scar.

In a recent review of 393 cesarean sections performed at the Boston Lying-In Hospital between July 15, 1894, and Nov. 24, 1916, it was found that 106 of these were repeated sections. These 106 repeated sections were performed on 73 women; that is, second sections were performed on 49, third sections on 19, fourth sections on 2, fifth sections on 2 and a sixth section on 1. In many instances these repeated cesarean sections were performed before the advent of labor, but there was also a large number of cases in which the operation was performed after labors of varying length of time. In not a single instance did any one of these 106 patients come to grief, either in pregnancy or labor because of rupture of a former cesarean section scar. In a considerable number of these former cesarean section cases, normal delivery was allowed to occur, and in others labor was terminated by operative vaginal delivery, including forceps operations, breech presentations and internal podalic version followed by manual extractions. No untoward results occurred.

Dr. Charles M. Green lays stress on the importance of allowing active labor to become established before the performance of a cesarean section, in order to obtain a thickened uterine wall. He believes that sutures placed in such a wall produce a stronger, thicker scar than when placed in the thinner wall of a uterus before the advent of labor. Any marked deviation in the method of closure from the principles laid down by Sänger results in a scar of less strength. Dr. Spalding has called attention to the fact that only three cases of rupture were reported between 1895 and 1900 when the classical Sänger operation was the only one performed.

It is well known that great speed in the performance of a cesarean section has been one of the objects striven for almost universally in the past, and is still the aim of some operators, even at present. The result of this practice has left the uterus insufficiently sutured, with faulty apposition of the cut edges of its wall, and a weak thin scar has been the sequence.

Two essential points in the technic of closure of the uterine wall are to be observed. One is the inclusion of the entire thickness of the muscle of the uterus in the suture. The innermost muscular layers often retract to such an extent that great care in the suturing is necessary to secure proper coaptation of the entire length of the incision. The other point is to place a deep suture through the uterine musculature both above the upper angle and below the lower angle of the wound, because at these points splits in the muscular tissue of the uterus frequently occur in the extraction of the body and head of the child. Proper suturing of the wound and healing without infection are indispensable in securing a good scar. A well sutured scar, followed by a convalescence free from infection, can safely be subjected to the strain of subsequent pregnancies and labors. Rupture of such a scar should occur with no greater frequency than does rupture of the normal pregnant uterus.

Dr. Samuel W. Bandler, New York: After ordinary laparotomy, more than 10 per cent. of abdominal wounds do not heal well, so far as a good scar is concerned. We may expect the same in a hurried cesarean section. I never use chromic catgut. I do not consider it an advisable suture for such a delicate structure as uterine muscle. We should, as much as possible, operate in clean cases. The result is always better when the patient has not been examined too much and when operative vaginal procedures have not been tried. If we do not unite the lower areas of the abdominal wall, especially the peritoneum, and vomiting and straining cause the peritoneum to separate, we will, in an occasional case, have a protrusion of the intestines right through up to the skin. The same thing holds in cesarean section cases. We must pay more attention to the depths of the wound, especially the uterine lining. I always give pituitary extract before making the abdominal incision, and therefore have a firmly contracted uterus to sew. I pass No. 2 iodin catgut, often double, through the uterus half an inch from the lower end of the incision so that it comes out through the depth of the wound close to the uterine lining. The needle is then passed through one side and then through the other, catching a good hold of the uterine muscle just above the decidua. This is passed in the same manner as a subcuticular suture is passed. At the upper end the needle then passes through the depth of the wound, coming out through the surface of the uterus half an inch or an inch above the upper margin of the wound. This suture is then pulled on and the uterine lining or decidua is brought closely together. When the ends are tied, the uterine cavity is walled off from the wound and no blood from the cavity of the uterus intrudes itself. The uterine walls themselves bleed scarcely at all, and one can leisurely sew the two raw surfaces together. As the interrupted or continuous suture is passed, the finger in the depth of the uterine wound guards the point of the needle so that it comes out as close to the uterine lining as possible, and dead spaces are thus avoided. A suture is passed to unite the peritoneal edges of the uterus, no attempt whatever being made to invert it. For several days after the operation ergotin is given by needle to keep the uterus contracted to the size it was when the operation was completed.

Dr. J. H. Carstens, Detroit: I am glad that Dr. Bandler objected to chromicized sutures. I use plain catgut; I want it to absorb quickly. All that is needed is to keep the wound together for a few days. I think in all instances of cesarean section for narrow pelvis the patients naturally need another cesarean section. I do not wait until these patients have been in labor for two or three days. I take charge of them and get them in the hospital a week or so before the time of labor and prepare for operation before labor sets in. Then I am sure there will be no strain on the scar, and I will never have any trouble about the rupture of the scar. Once in a while a patient will wait until labor. Then I rush her to the hospital as soon as possible. The first thing I do is to rupture the membrane in order to relieve the pressure. By doing these things there will be fewer cases of rupture than otherwise.

Dr. E. Gustav Zinke, Cincinnati: Recently I have been thoroughly absorbed in the theories concerning the healing of the uterine incision after cesarean section and its behavior in subsequent pregnancy and labor. One of the conclusions I have reached is that it matters little what suture material we use in sewing up the wound, but that it is most important that we have an aseptic wound, that we bring the sides of the incision into perfect apposition and unite the peritoneum securely over it. This procedure is absolutely essential to a firm uterine scar.

Much has been said concerning the dictum, "Once a cesarean section, always a cesarean section." That can hold true only in those cases in which the conditions persist which made the first cesarean section necessary. When hysterotomy is performed for placenta praevia, or eclampsia, a perfect uterine scar will admit of spontaneous delivery in subsequent pregnancies.

But when do we have a perfect scar? Though Whitridge Williams and others maintain that an undisturbed recovery from a cesarean section is the best indication that the uterine wound is firmly united, does this statement hold true in every case? When there is no obstruction in the parturient canal and the presentation and position of the child are favorable, when obliteration of the cervix and dilatation of the os proceed promptly, and the first stage of labor has been completed, the cesareanized woman will deliver herself, undoubtedly, if she has a solid uterine scar. She should, however, be delivered in a hospital so that, if rupture of the wound does occur, the abdomen may be opened at once with a view to saving both lives. But in all cases in which the indications for cesarean section persist, cesarean section is the only proper operative intervention.

Dr. Alfred B. Spalding, San Francisco: I shall not enter into any discussion concerning technic. Dr. Zinke has mentioned a point which to my mind is of the utmost importance regarding cesarean section: The growing list of indications for the operation should be curtailed. I have seen cesarean section performed on women with normal pelves, because their physicians allowed the pregnancy to go overtime, when a dose of castor oil and quinin would have prevented cesarean section. I have seen cesarean section for breech presentation. In eclampsia the mortality is not greatly reduced by cesarean section over other obstetric procedures. In conditions such as placenta praevia, I think we should hesitate before doing cesarean section at the first sign of hemorrhage. We should first ascertain the kind of placenta praevia we are dealing with before resorting to section. Because cesarean section is technically so easy to perform, many men not well trained in obstetrics are dabbling with something they have no business tampering with.

THE COLLOIDAL GOLD TEST

THE PREPARATION OF THE COLLOIDAL GOLD SOLUTION AND ITS APPLICATION TO DISEASES OF THE CENTRAL NERVOUS SYSTEM *

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I. The Preparation of the Reagent

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To one who has even a casual acquaintance with the literature of colloidal gold solutions, three things are at once apparent: 1. There is a general agreement that satisfactory solutions are difficult of preparation. 2. There are approximately as many variations in technic as there are workers. 3. There is unanimity of opinion that the use of the solution in the diagnosis of diseases of the central nervous system has a very definite value.

The major portion of the work done in this country has been carried on with a more or less close adherence to the technic of Lange,[1] variations being introduced by the individual worker in the effort to produce uniform results. It is quite true that many men have been able to produce satisfactory solutions — some of them with considerable regularity — but the inability to secure continued duplication of results, together with the irregular behavior of some of these apparently good solutions, makes it evident that all the conditions necessary to the production of a good solution are not known, and that the standards by which these solutions are judged are insufficient.

A very marked advance in our knowledge of these conditions was made by the report of Miller, Brush, Hammers and Felton.[2] They propose a method which, if carefully followed, will give uniform results, and devised means by which these solutions which appear satisfactory but are not can be detected. Our own experience led us quite early to the conclusion that their claims were well founded and their technic quite dependable. Feeling, however, that the requirements as to equipment, time and complexity of detail might serve to deter many men from as general a use of the reagent as its value deserves, we entered on this work with the purpose of determining to what extent simplification might be carried without interference with uniformity of results. The technic of others has been used on occasion to check findings and with the desire to clear up certain points, but the work of Miller and his associates was the basis of this work and was accepted as standard technic.

As soon as it was evident that this method produced uniformly good solutions, work was begun retaining the original technic with the exception of one factor, and variations in this one factor — all other conditions remaining constant — were used to determine their influence on the character of the solution. Our findings, as based on the preparation of 367 solutions, can probably best be presented by separate, brief statements relative to each factor, with tables appended detailing experimental data when it is believed such information might be of value.

Distilling Apparatus.—The apparatus used for the first thirty-nine solutions consisted of resistance glass flasks, block tin tubing, and cork connections. The tin tube was bent near one end forming a wide arc. The short vertical section of tubing projected through a tight fitting cork into the distilling flask. The long vertical section of tubing was surrounded by a condenser jacket and passed through a loose fitting cork into the receiving flask. This simple apparatus gave entire satisfaction. For the greater portion of the work a 3 gallon copper, tin-lined still was used.

Method of Distillation.—The flame is turned high and the first distillate comes over rapidly, while no water flows through the condenser jacket, the steam cleaning the tube. After about 200 c.c. with the small apparatus, and 1,000 c.c. with the larger, have come over, the flame is cut down until the water flows in discrete drops into the receiving flask. Distillation is stopped when approximately four fifths of the contents of the distilling apparatus have come over.

Number of Distillations.—Beginning with one distillation with a Stokes still followed by two in the above described apparatus, we soon found that, by carefully distilling, a single distillation with this apparatus without preliminary treatment was entirely satisfactory, and this became routine procedure. Water once distilled in a Stokes still was found to vary so widely at different times that it was not to be depended on, although, in one instance, excellent solutions were obtained by its use.

Storage of Water.—Singly distilled water has been stored at room temperature in clean resistance glass flasks and has proved satisfactory after thirty-four days. No attempt was made to determine this further. In ordinary glass the water has been found satisfactory after forty-two days. We believe that the age of carefully distilled water has no influence on the character of the gold solution. Indeed, Zsigmondy[3] states that doubly distilled water improves with age through a settling of the particles contained.

Cleaning of Glassware.—New glass was used and was, of course, used for nothing else. Hot soap and water for thirty minutes was followed by careful brushing under the tap; then hot dichromic acid solution for thirty minutes followed by careful rinsing under the tap, then with distilled water. If this procedure was carried out as the initial cleansing, it was found that much of this could be omitted at subsequent times. Beakers used on one day stood over night filled with tap water and were used with satisfaction after careful brushing and rinsing. Beakers stood inverted on filter paper on the laboratory table for one week and were used after only brushing and rinsing. Good solutions resulted. Pipets used for measuring reagents were wrapped in filter paper after use and used twelve days later after rinsing with distilled water. Good results were obtained. Glassware which is not thoroughly clean is, in our opinion, the cause of the vast majority of protected solutions. Glass cleaned and used according to the foregoing statements should eliminate protected solutions with a minimum of labor.

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* Read before the Section on Pathology and Physiology at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

[1] Lange: Berl. klin. Wchnschr., 1912, **49**, 897; Ztschr. f. Chemotherap., 1913, **1**, 44.

[2] Miller, Brush, Hammers and Felton: Bull. Johns Hopkins Hosp., **26**, 298, 391.

[3] Zsigmondy: Colloids and the Ultramicroscope, New York, 1909.

Reagents.—Merck's chemicals were satisfactory, as were Baker's. Schering and Glatz' formaldehyd solution gave satisfaction. It was found that all reagents could be used as stock solutions. These were frequently used over a period of thirty days. Indeed, one formaldehyd solution was found satisfactory after three months. The only precautions used were to insure clean water, clean flasks kept tightly corked, and accurate measurements.

Preparation of Colloidal Solution (100 c.c. being used as a basis for discussion).—A beaker containing 100 c.c. of water is placed on wire gauze over a high flame. One c.c. of the 1 per cent. gold chlorid solution is added, followed by 0.7 c.c. of the 2 per cent. potassium carbonate. Heating is rapid, and at incipient boiling 0.5 c.c. of 1 per cent. formaldehyd is added. The solution should be vigorously stirred until reduction is complete. This should not require more than two minutes.

Comments on Technic of Preparation.—We have not found it necessary to add the gold and alkali at any particular temperature. Satisfactory solutions have been made by adding reagents to cold water and rapidly heating to boiling. The temperature at which the formaldehyd is added is, however, of much importance. If added at a low temperature, vaporization of a considerable quantity of formaldehyd may occur, leaving an amount insufficient for complete reduction of the gold. If added at a high temperature, the rapidity of the reaction is so increased that the loss by vaporization is negligible. Using the stated quantity of formaldehyd, we have obtained good solutions with equal ease at 90 C. and with vigorous boiling.

The, use of oxalic acid has, in our experience proved unnecessary.

DISCUSSION

The equation representing the reactions occurring in the preparation of the colloidal gold solution is, we believe:

$$9K_2CO_3+4AuCl_3+6HCHO=6HCOOK+2Au_2+3H_2O+9CO_2+12KCl$$

This equation may be proved by some results of our work, and it throws much light on other phases of the problem.

Influence of Alkali.—Calculation from the equation shows the amount of alkali required to maintain equilibrium with the gold chlorid used to be 0.01027 gm., which is contained in 0.513 c.c. of the 2 per cent. solution. It is evident that the formaldehyd is oxidized to formic acid, the amount of acid produced being neutralized by the amount of alkali over and above that required for the initial equilibrium with the gold. This added amount, according to the equation, is 0.171 c.c. of the 2 per cent. solution, making a total of 0.684 c.c. of the 2 per cent. solution required.

Table 1 illustrates a series of colloidal gold solutions made with potassium carbonate, varying in amount from 0.4 to 1.5 c.c. It will be noted that increase of alkali above 0.684 c.c.—the amount calculated from the equation—causes no shimmer, but gives beautiful solutions until more than 1 c.c. was used. Then the solutions were quite turbid and reduction occurred immediately on the addition of the formaldehyd. These solutions were, of course, alkaline. Decrease of alkali could be carried to 0.5 c.c., at which point pale blue solutions were obtained only after prolonged heating. Theoretically, we should expect to find reduction taking place in direct ratio to the decrease in the amount of alkali, the solution becoming lighter in color as the amount of reduced gold decreases, and the limit at which reduction is completely absent should be somewhat below the amount calculated as required. That this is borne out by the experimental data may be seen.

TABLE 1.—INFLUENCE OF ALKALI

Amount of 2 Per Cent. Solution C.c.	Reaction	Character of Solution
.4	....	No reduction
.5	Alkaline	Pale blue
.515	Alkaline	Reddish-blue
.525	Alkaline	Decided shimmer
.550	Alkaline	Faint shimmer
.575	Alkaline	No shimmer
.6	Alkaline	No shimmer
.625	Neutral	No shimmer
.650	Neutral	No shimmer
.675	Neutral	No shimmer
.7	Neutral	No shimmer
.725	Neutral	No shimmer
.750	Alkaline	No shimmer
.775	Alkaline	No shimmer
.8	Alkaline	No shimmer
.825	Alkaline	No shimmer
.850	Alkaline	No shimmer
.875	Alkaline	No shimmer
.9	Alkaline	No shimmer
.925	Alkaline	No shimmer
.950	Alkaline	No shimmer
.975	Alkaline	No shimmer
1.0	Alkaline	No shimmer
1.25	Alkaline	Turbid
1.5	Alkaline	Turbid

Although 0.513 c.c. is the amount of alkali required for equilibrium with the gold, reduction will occur at as low as 0.5 c.c., but even at 0.525 c.c. reduction is evidently incomplete. Addition of further alkali to these bluish solutions produces an immediate change to the red of a fully reduced gold, but we were unable to get brilliant, transparent solutions in this way. We believe we are dealing here with a partial reduction of all the gold, and that the situation is analogous to the partial reduction with minimum amounts of formaldehyd which is discussed below. The partial reduction here may be explained on the basis that, according to the mass law equilibrium, there must be a few potassium carbonate molecules which by their dissociation would yield the small amount of alkali necessary to permit partial reduction. One might expect a cycle which would eventually lead to complete reduction. This, however, is prevented by the presence of the potassium chlorid (and potassium formate), which represses dissociation of the few free potassium carbonate molecules. When it is remembered that formaldehyd acts as a reducing agent only in an alkaline medium, we have a possible explanation for the behavior of the solutions which Miller and his associates found did not reduce with the stipulated amounts of reagents. Using oxalic acid, measured in drops, which probably permitted variation in amount, this probably neutralized the free alkali and prevented reduction.

Influence of Formaldehyd.—Calculated from the equation, the amount of formaldehyd required to completely reduce the gold is 0.001486 gm., the amount contained in 0.1486 c.c. of the 1 per cent. solution. Reference to Table 2 shows that the amount of formaldehyd may be increased to 5 c.c. without producing any shimmer. Decrease in amount was possible to 0.13 c.c. Below this point blue, opaque, solutions resulted. Below 0.45 c.c. the solutions were alkaline. The time required for reduction varied inversely with the amount of formaldehyd. If, to those solutions whose color is unsatisfactory because of the use of insufficient formaldehyd, further formaldehyd is added after reheating the solution, beautiful *satt rot* (intensely red) solutions which are neutral in reaction may be obtained. We have been able to convert an opaque, blue, alkaline solution, made with only 0.1 c.c. formaldehyd, into a beautiful, neutral solution by this method. By reference to Table 3 it will be seen that these "corrected" solutions give typical curves with a paretic spinal fluid.

Influence of Carbon Dioxid.—With an ammonia-free water it should be evident that "the gases in the water"[4] play no part in the determination of the quality of a solution, for carbon dioxid is produced in the reaction; and whether the temperature is maintained at 90 C. or brought to boiling is immaterial, for the difference in the carbon dioxid coefficient at 90 C. and at 100 C. is too slight to affect the solution, and even at 100 C., carbon dioxid, is not entirely removed, but has the absorption coefficient of 0.2438.[5]

Inflence of Method of Heating.—Solutions made properly are neutral in reaction to alizarin. If heating has been slow and the formaldehyd is added before the boiling point is reached, vaporization of the formaldehyd will be excessive, resulting in incomplete reduction and alkalinity. Depending on the amount of formaldehyd lost by evaporation, the solution may be a deep red, a light red, or blue and opaque. These variations may be produced without varying the amount of formaldehyd, if the method of heating is changed.

Solutions made in the ordinary way, without stirring after the addition of the formaldehyd, usually do not give brilliant color without shimmer; yet stirring may be dispensed with if the solution is made in the water-bath.

TABLE 2.—INFLUENCE OF FORMALDEHYD

1 Per cent. Solution, Quantity C.c.	Time for Reduction	Reaction	Color
.1	Slow	Alkaline	Blue
.11	Slow	Alkaline	Blue
.12	Slow	Alkaline	Blue
.13	Slow	Alkaline	Good
.14	Slow	Alkaline	Good
.15	2 minutes	Alkaline	Good
.2	2 minutes	Alkaline	Good
.25	1⅚ minutes	Alkaline	Good
.3	1⅔ minutes	Faintly alkaline	Good
.35	1 7/12 minutes	Faintly alkaline	Good
.4	1½ minutes	Faintly alkaline	Good
.45	1 9/20 minutes	Neutral	Good
.5	1⅙ minutes	Neutral	Good
1.0	1 minute	Neutral	Good
2.0	½ minute	Neutral	Good
3.0	⅓ minute	Faintly acid	Good
4.0	⅕ minute	Acid	Good
5.0	⅕ minute	Acid	Good

Since it is evident that the limits within which the alkali and formaldehyd give good solutions are wide enough to embrace any amount of inaccuracy of measurement of a careful worker, and the carbon dioxid tension can have no influence on the solution, and since the manner of heating produces such definite effect, we feel that we are justified in believing that if the technic described above is followed, solutions with shimmer—slight or excessive—can be due to only one cause, namely, slow or irregular heating.

Catalytic Oxidation of Formaldehyd by Colloidal Gold.—Lange's original technic[1] called for 1 c.c. of a 2 per cent. potassium carbonate and 1 c.c. of a 1 per cent. formaldehyd. Neutral solutions can be obtained by this method. Since this is more alkali than is required according to the equation given above, the neutrality of reaction can be explained only on the basis of the colloidal gold acting as a catalyst and causing oxidation of the formaldehyd in excess to formic acid, which then reacts with the excess potassium carbonate. Indeed, it seems probable that solutions made with smaller amounts of alkali are neutral for the same reason. If the calculated amount of potassium carbonate is used, the final reaction of the solution we would expect to be alkaline, owing to the hydrolysis of the potassium formate and the potassium carbonate liberated from its equilibrium with the gold chlorid when the latter is completely reduced. Since the solutions are not alkaline, we believe that the result is obtained through the catalytic action of the colloidal gold on the excess formaldehyd. The formic acid so formed combines with the potassium carbonate liberated and, if sufficient in amount, will also repress the dissociation of potassium formate. Proof of this supposition seems to be furnished by three facts: 1. Many solutions made by the prescribed technic may be slightly alkaline immediately at the completion of reduction, but become neutral after the lapse of a few minutes without further treatment. 2. Solutions made with a known excess of alkali may be made neutral by reheating and adding additional formaldehyd. 3. Solutions which have been standing for some time and have become alkaline may be made neutral by heating and adding formaldehyd. These "corrected" solutions give typical curves with spinal fluids (Table 3).

Correction of Solution.—It is interesting to note that, while blue solutions made with insufficient formaldehyd may be corrected, and those alkaline from preparation with excess alkali or from standing may be neutralized, and that these may be satisfactorily used in testing spinal fluids, we have not been able to correct the turbidity due to marked excess of alkali or to irregular heating.

The fact that alkaline solutions may be made neutral simply by heating and adding formaldehyd may be used to advantage in the correction of the reaction (if this is desired), in that it requires no particular accuracy of manipulation or of quantity, as the formaldehyd may be added 1 c.c. at a time until the reaction becomes definitely neutral. It may be added that if evaporation of water is considerable, either during the preparation of the solution or in correcting its reaction, water may be added to restore the original volume.

Standards for Solutions.—The standards to which a solution must conform to be adjudged satisfactory have been stated by Miller and his associates to be as follows:

1. The solution must be absolutely transparent and preferably brilliant orange red or salmon red.
2. Five c.c. of the solution must be precipitated in one hour by 1.7 c.c. of a 1 per cent. sodium chlorid solution.
3. It must be neutral when used.
4. It must give a typical reaction with a known paretic fluid.
5. It must show no more than a change to red-blue with a known normal fluid.

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[4] Glaser: Neurol. Centralbl., 1914, **33**, 688, 748. Lee and Hinton: Am. Jour. Med. Sc., 1914, **148**, 33.

[5] Landolt-Bornstein: Tabellen.

Our work leads us to conclude that: 1. Solutions which are transparent, but show a slight shimmer by reflected light, may be used satisfactorily. The curve will not differ from that given by a brilliant solution. 2. If a solution is protected, so as to make it even slightly refractory to precipitation by the amount of sodium chlorid mentioned, it should not be used. 3. Solutions made with 1 c.c. potassium carbonate—0.3 c.c. above the required amount and, consequently, markedly alkaline to alizarin — give curves practically identical with those given by normal solutions (Table 3). With the technic described above we have never obtained acid solutions. It is quite possible that the acid solutions obtained by Miller and his associates were those in which they found reduction not occurring with the specified amount of formaldehyd. This was probably due to the removal, by the oxalic acid used, of the alkali required for the reducing action of the formaldehyd. If then further formaldehyd was added, the addition of 1 or 2 drops of alkali, sufficient to bring the solution to an alkaline reaction, permitted reduction. Meanwhile the very considerable excess of formaldehyd which was used was catalytically oxidized to formic acid and the reaction made acid to alizarin. 4. Solutions satisfactory in color and not protected should show typical curves with abnormal fluids and no change with normal fluids.

TABLE 3.—CURVES OBTAINED

With Known Paretic Fluid:	
1. Brilliant, neutral solution	5555521000
2. Neutral solution with decided shimmer	5555552100
3. Blue-red solution made with 0.1 c.c. HCHO	4445555555
4. No. 3, corrected by adding HCHO	5555555200
5. Solution made with 3 c.c. HCHO	5555552100
6. Alkaline solution made with 0.525 c.c. K_2CO_3	5555552100
7. Solution made with 0.5 c.c. K_2CO_3 and corrected	5555555200
8. Alkaline solution made with 1 c.c. K_2CO_3 and 0.5 c.c. HCHO	5555521000
9. No. 8, after standing three weeks—very alkaline to alizarin	1223210000
10. Lange's technic—reaction neutral—used fresh	5555531000
11. Lange's technic-alkaline from standing three weeks.	2434410000
With Known Syphilitic Fluid:	
12. No. 1	1232110000
13. No. 8	1233210000
14. No. 10	2234110000
15. No. 4	1232200000
16. Brilliant solution alkaline from standing two months—corrected by reheating and adding HCHO	1232110000

CONCLUSIONS

1. Singly distilled water may be stored satisfactorily in clean glass for many days.

2. Protected solutions are usually due to unclean glass.

3. Reagents may be used satisfactorily as stock solutions.

4. If technic is carefully followed, turbid solutions are due to slow or irregular heating and cannot be corrected.

5. Formaldehyd should be added at from 90 C. to boiling.

6. Solutions poor because of use of minimal amounts of alkali or formaldehyd may be corrected, the latter, so that they may be used clinically.

7. The use of oxalic acid is not necessary and is possibly occasionally responsible for failure of reduction.

8. The presence of carbon dioxid is of no consequence.

9. Solutions alkaline at the time of preparation or on standing may be made neutral by reheating and adding formaldehyd.

10. Solutions showing a slight shimmer may be used satisfactorily.

11. Solutions definitely alkaline at the time of preparation, if of good color, may be satisfactorily used. Those alkaline from standing give irregular curves.

II. The Clinical Application of the Colloidal Gold Test

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In view of the fact that the preparation of a satisfactory solution for the colloidal gold test has become a simple problem, and that the performance of the test is attended with few chances of error, it would add greatly to our diagnostic and prognostic ability if we were able to establish definite and certain behavior of the test under identical clinical conditions and circumstances. With the view of adding our data to those already accumulated, this report is made.

The cases coming under our observation will be classed as syphilitic and nonsyphilitic. Of the latter there are many, but the collection is heterogeneous and does not yet seem suitable for the basis of definite conclusions. Our experience with syphilitic diseases of the central nervous system embraces, to date, fifty-nine patients on whom 169 examinations of the spinal fluid were made. All of these gave definite clinical evidence of some central nervous system involvement. With this comparatively small number our results have shown a uniformity in some particulars that leads us to feel that they are worthy of presentation as a basis for further study.

Of the fifty-nine syphilitic cases, fifty-six gave a positive colloidal gold test. The three cases that were negative to this test were classed by our clinical findings as cerebrospinal syphilis, and gave, respectively, sixteen, twenty-one and sixty-two cells. All of these gave positive Wassermann tests of the blood, while the one showing sixteen cells gave also a positive Wassermann on the spinal fluid.

Thirty-six of the fifty-nine cases gave positive Wassermann tests on the spinal fluid. There was no parallel to be drawn here except that the paretic curve was more often associated with a positive Wassermann than was any other curve. Nineteen of the fifty-one patients whose blood was examined gave positive Wassermann tests of the blood. All of the fifty-nine cases showed a pleocytosis ranging from nine to 120 cells. There were no parallels to be drawn here, as one case of syphilitic meningitis gave 120 cells with a positive Wassermann test of the spinal fluid and a marked curve in the meningitic zone, while a case of incipient tabes gave 120 cells and the spinal fluid was otherwise negative. Later this case of tabes developed a curve in the meningitic zone with a cell count of thirty-six. Solomon and Southard[6] have already pointed out that the colloidal gold reaction indicates one sort of physicochemical situation in the cerebrospinal fluid; the lymphocytosis indicates another type of reaction on the part of the nervous system. The number of cells accompanying a paretic curve varied from twelve to sixty, while with the meningitic curve they varied from twelve to 120. Of all our cases twenty to thirty cells was the average.

A positive globulin test was found in all cases, while reduction of Fehling's solution was seldom noted.

As to the reliability of the colloidal gold test, we found that of five cases diagnosed clinically as paresis, all gave curves in the paretic zone. However, among eleven tabetics, the paretic curve was present in three cases; six gave meningitic curves, and two were in the syphilitic zone. Thirty-nine cases of cerebrospinal syphilis gave three negative curves with the colloidal gold test, as noted above; twenty were in the meningitic zone, and fifteen were in the syphilitic, and one, in whom paresis could not be entirely excluded, gave a paretic curve.

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[6] Solomon and Southard: Jour. Nerv. and Ment. Dis., 1917, 45, 230.

We believe there is no such thing as a provocative colloidal gold reaction. While several fluids showing a negative Wassermann test became positive after treatment, no change was noted in the gold test.

Red blood cells—or blood plasma—appeared, at times, to cause disturbance in the final reading, but no definite conclusion can be drawn from our series. A case of cerebrospinal syphilis with a positive Wassermann test on the spinal fluid and a syphilitic curve gave later, when many red cells were present, a paretic curve. Two cases of cerebrospinal syphilis with negative Wassermann tests on the spinal fluid and syphilitic curves gave later, with red cells present, the same curve, the blood causing no evident change. A case of tabes with positive Wassermann test on the spinal fluid and paretic curve, with red cells present, gave complete precipitation in all tubes.

Vigorous intravenous and intraspinal treatment tends to bring all positive tests on the spinal fluid toward the negative. Our experience has been that the colloidal gold test is the last to become negative, and hence is the most reliable as a prognosite guide. It is also our experience that the colloidal gold test is the earliest reliable test to be found in the spinal fluid of syphilitic patients, being frequently earlier than the Wassermann reaction. Pleocytosis and increased globulin content are excluded since they are present in all inflammatory conditions of the meninges. We have been unable in any wise to prove, but feel justified in assuming, that a given spinal fluid passes successively, during the progress of sphyilitic involvement, from syphilitic to meningitic to paretic curves, and vice versa, during intensive treatment. That is to say, the condition producing the change in the state of the colloidal gold is the same in all zones and merely present to a greater or less degree. Further observation will probably prove or disprove this assumption. We have several cases that have, under treatment, receded from the meningitic to the syphilitic zone, and some of these have finally become entirely negative. A case of clinical tabes which gave a paretic curve, with a positive Wassermann test on the spinal fluid and twenty cells, gave, after treatment, a meningitic zone curve, a negative Wassermann, and thirty cells. Clinically there was much improvement.

We believe that in active syphilis of the central nervous system, a positive colloidal gold test is always accompanied by one or more other indications of involvement of the central nervous system. Pleocytosis and increased globulin are always associated, but there is no constancy of association of other tests. There are, unquestionably, cases in which the colloidal gold curve will persist after all other findings are negative. This occurs probably in those cases in which no intraspinal treatment has been given, but which have reached apparent cure with only systemic medication. In these cases we believe the curve has little or no prognostic value. The patient is probably cured. In those instances in which repeated tapping of the canal has been done, we have found that the curve, while persisting longer than other findings, becomes negative if the patient receives a clinical cure.

CONCLUSIONS

1. A colloidal gold reaction typical for syphilis is nearly constant in cases of syphilis of the central nervous system.
2. This reaction is more delicate than the Wassermann tests on the blood and spinal fluid and more reliable than pleocytosis and globulin content. Curves are, of course, given with other conditions than syphilis, but we believe the curves mentioned above to be specific.
3. The test is the most reliable of the various tests as a diagnostic aid, and is the best guide for prognosis during treatment, probably tending to become negative in a regular and constant order.
4. Known paretics always give a paretic curve; however, there is obtained occasionally a paretic curve in other phases of central nervous system syphilis.
5. There is no provocative colloidal gold test.
6. The presence of red blood cells—or plasma—in the spinal fluid often vitiates the result of the test.

VEGETABLE FOODS FOR THE DIABETIC *

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Even a slight experience in the planning of the diet for the diabetic readily convinces one that careful thought and work along this line are needed, and that time and effort spent in an attempt to enlarge the meager diet list of such patients will be fully justified. With the necessary elimination of practically all fruits and many vegetables, because of their carbohydrate content, the diet of the diabetic becomes very much restricted and monotonous and undesirably reduced in bulk. The withdrawal of fruits and vegetables from the diet is keenly felt, and the diabetic craves the variety that is furnished by this type of food.

The usual analysis of our ordinary food materials gives their percentage composition in terms of so-called protein, fat, carbohydrate, ash and water, and from such data lists of foods have been compiled for the use of the diabetic. A familiar arrangement is that in which fruits and vegetables are classified into 5, 10, 15 and 20 per cent. carbohydrate groups, and from such lists definite portions are daily assigned to the diabetic in accord with his tolerance. Table 1, from Joslin's "Treatment of Diabetes Mellitus," gives an illustration of such a classification.

The figures of percentage composition of foods are capable of definite interpretation from the chemical, but not from the physiologic point of view. The end-products of a chemical analysis are not necessarily a safe index to the end-products of the same materials when taken as food into the animal organism. This is a well known fact, but one needs to bear it in mind when considering the amount of carbohydrate, and especially in the case of diabetes, in which the carbohydrate of the diet is so important a factor in the treatment. According to chemical constitution, cellulose and the hemicelluloses are as truly carbohydrates

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* From the Sheffield Scientific School, Yale University.

as the sugars and starch, and the hemicelluloses are easily hydrolyzed with acid to the same simple sugars that result from the digestion of complex sugars and starch. Agar-agar is characterized by the hemicellulose galactan, but utilization experiments have shown that agar-agar is not to any appreciable extent a source of available carbohydrate for man. Inulin has been suggested as a possible carbohydrate for the diabetic because it yields levulose on splitting and there is some indication that levulose can be better tolerated than glucose. The higher animals have no enzyme capable of splitting inulin, and therefore its conversion into levulose in the body is dependent on the acid of the gastric juice. Lewis[1] has shown that inulin is poorly utilized by man. Intestinal fermentation attends its use, and the value of inulin in the diet is questionable. Swartz[2] has given numerous other illustrations of the failure of man to utilize certain complex carbohydrates.

TABLE 1.—FOODS ARRANGED APPROXIMATELY ACCORDING TO PERCENTAGE OF CARBOHYDRATES

	5 per Cent.*		10 per Cent.*	15 per Cent.	20 per Cent.
Vegetables (fresh or canned)	Lettuce Cucumbers Spinach Asparagus Rhubarb Endive Marrow Sorrel Sauerkraut Beet greens Dandelion greens Swiss chard Celery	Tomatoes Brussels sprouts Watercress Sea kale Okra Cauliflower Eggplant Cabbage Radishes Leeks String beans Broccoli	Pumpkin Turnip Kohlrabi Squash Beets Carrots Onions Mushrooms	Green peas Artichokes Parsnips Canned lima beans	Potatoes Shell beans Baked beans Green corn Boiled rice Boiled macaroni
Fruits	Ripe olives (20% fat) Grapefruit Lemons		Oranges Cranberries Strawberries Blackberries Gooseberries Peaches Pineapple Watermelon	Apples Pears Apricots Blueberries Cherries Currants Raspberries Huckleberries	Plums Bananas Prunes
Nuts	Butternuts Pignolias		Brazilnuts Black walnuts Hickorynuts Pecans Filberts	Almonds Walnuts (English) Beechnuts Pistachios Pine nuts	Peanuts 40 per Cent. Chestnuts
Misc.	Unsweetened and unspiced pickles, clams, oysters, scallops, liver, fish, roe				

* Reckon available carbohydrates in vegetables of 5 per cent. group as 3 per cent, of 10 per cent. group as 6 per cent.

Since the carbohydrate-free foods are limited in number, efforts have been made to remove or reduce the carbohydrate naturally occurring in some of our foods, thereby making them suitable for the diabetic diet. The "thrice-cooked vegetables" represent such an attempt. In preparing them the water is changed twice during the cooking process and thrown away, carrying along a certain amount of soluble material. To learn something of the condition of the food after this treatment, "thrice-cooked vegetables" were prepared and analyses made to determine the extent to which carbohydrate is removable by water extraction. As might have been suspected, it soon became evident that there is a variation in the effectiveness of the method depending on the vegetable used.

A preliminary series of experiments was planned to gain a rough idea of the relative amount and nature of the material that might be removed by water extraction. In order to facilitate the process, the solid vegetables were cut into small pieces or slices. The vegetable was well covered with cold water, heated to the boiling point, and cooked for several minutes. This first water extract was drained off, fresh cold water added, and another extract made in the same way. This process was repeated until an extract was obtained that contained no reducing substance. Each extract when drained off from the vegetable was concentrated and made up to a given volume, and then its reducing power was tested qualitatively with Benedict's solution. All of the reducing extracts were united, and a determination of the reducing substance in this total extract was made by Benedict's method for quantitative estimation of glucose. The reducing substance of the total extract was calculated as glucose. In many instances the color of the extract interfered with the quantitative test, and such extracts were therefore clarified and decolorized by the use of lead acetate, the excess of the latter being removed with hydrogen sulphid gas. The nature of the reducing substance was further tested with yeast to determine its fermentability. The residue of the vegetable, after all extractions were made, was finely ground and submitted to amylolytic digestion with saliva, and the salivary extract was tested for reducing substance. When the color did not interfere, tests for starch were made with iodin. All figures are calculated on the edible portion of the food.

Table 2 reveals the fact that at the end of the third extraction — which fairly represents the "thrice-cooked" vegetable—some of these materials were comparatively freed from reducing substance while others were not. The table also shows enough difference in the amount of reducing substance to suggest the wisdom of a choice among these illustrative vegetables in making up a diabetic diet. A dietitian recently remarked that diabetic patients do not tolerate cauliflower very well. This is not surprising in view of the fact that the cauliflower is not only comparatively rich in reducing substance, but is also slow to give this up by cooking, as evidenced by the number of extracts showing reduction. In all of these vegetables in which the extract reduces, it also ferments with yeast. No further attempt was made to identify the reducing substance. Most of these vegetables were evidently very poor in starch, for salivary digestion of the residues in very few cases resulted in an extract that showed any reducing substance. The common use of spinach in the diet of the diabetic is easily justified by the low carbohydrate content, by the ease of its extraction, and by its good color and appearance even after several extractions. Fortunately, spinach retains its flavor to an appreciable extent. Celery also deserves a place in the diet of the diabetic. The ordinary field mushrooms (*Agaricus campestris*) are unique among the foods examined. These seem suitable for use, without modification, in the most restricted diet, and may be prepared alone or in combination with other less tasty products for the sake of flavor. The value of the mushroom is in its flavor, for it is seen to have no extractable carbohydrate, and Mendel[3] has shown that its nitrogen does not occur as protein, but in an unavailable form. This variety of mushroom may be found in the fields in the proper season, and it is not very difficult to cultivate. Mushrooms both fresh and dried are fairly common in many of our markets and are frequently obtained at a very reasonable price.

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[1] Lewis, H. B.: Value of Inulin as a Foodstuff, THE JOURNAL A. M. A., April 20, 1912, p. 1176.

[2] Swartz, Mary D.: Nutrition Investigations on the Carbohydrates of Lichens, Algae and Related Substances, Yale University Press, 1911.

[3] Mendel, L. B.: The Chemical Composition and Nutritive Value of Some Edible American Fungi, Am. Jour. Physiol., 1898, 1.

The findings in the foregoing experiments are only preliminary to further work. The analyses should be repeated so that the results will represent averages from many more tests, and a number of other foods should be examined. The results already obtained are suggestive, however, of helpful possibilities in the preparation of food for the diabetic.

TABLE 2.—RESULTS OF BOILING WATER EXTRACTION

Vegetable	Artichoke (French)	Asparagus (canned)	Carrot	Cauliflower	Celery	Endive	Kale	Mushroom	Rhubarb	Spinach (fresh)	Spinach (canned)
Number of extracts showing reduction test	2	9	6	16	3	11	6	0	5	4	9
Percentage of reducing substance extracted and calculated as glucose	Trace	1.5	1.8	1.8	0.1	0.6	1+	0	0.4	0.2	0.4
Fermentation of extract with yeast	+ Very slight	+	+	+	+	+	+	0	+ Very slight	+	+
Percentage of reducing substance in salivary extract of residue	0	0	0	0.1	0	0	0	0	0	0	0
Iodin test for starch in extracts	....	....	0	+	0	0	....	0			
Total percentage of carbohydrate—average composition*	....	2.8	9.3	4.7	3.3	....	....	6.8	3.6	3.2	

* Atwater and Bryant: Chemical Composition of American Food Materials, Bull. 28, Office of Experiment Stations, U. S. Department of Agriculture.

Following the principle used in the extraction of the sugar beet in the commercial preparation of sugar, similar treatment of a few other vegetables has been tried in an effort either to render them free from available carbohydrate or materially to reduce the amount. In this series of experiments the vegetables were finely sliced, well covered with water at 60 C. (140 F.) and allowed to soak. At intervals of ten or fifteen minutes, the water having cooled to 45 or 40 C. (113 or 104 F.) was drained off, and fresh water at 60 C. added for the next extraction. This process was repeated until, on removal of a portion of the vegetable and thoroughly cooking it at the boiling temperature, an extract was obtained which gave no reduction test.

Table 3 gives the results of the boiling water extraction and of the extraction at 60 C. The possibilities in the latter method have not been fully tested as yet. The extraction at the lower temperature seems equally efficacious in the case of some vegetables, but it is not adapted to the preparation of cabbage, for example, and probably not to some others. The extraction at 60 C. has the advantage of impairing color and texture less than the repeated extractions with boiling water.

To the normal person, with his liberty of choice of food materials, these extracted vegetables are not unusually tempting; but to the diabetic, with his restricted range of selection, they do offer something of interest. One diabetic was so much pleased with carrots prepared by the 60 C. extraction that he has planted this vegetable in his garden to assure his supply. It is evident that vegetables could be so treated and preserved for subsequent use either by canning or drying. By the use of a current of air from an electric fan, the carrots extracted at 60 C. can be easily and thoroughly dried in three and a half hours. They retain their color perfectly when desiccated in this rapid manner, and after soaking and cooking show little variation from the fresh carrot when cooked.

As it was realized that sucrose and other disaccharids, as well as the hemicelluloses, would not be detected in the foregoing direct examination of these vegetables for reducing substances, a more detailed analysis of carrots was made comparing the results of the extractions at boiling temperature and at 60 C. in experiments in which the extracts and residues were tested for reduction both before and after hydrolysis.

It is apparent that the carbohydrate of the carrot occurs almost entirely in the form of a soluble reducing substance, for neither salivary digestion nor hydrolysis adds materially to the total reducing power. This is not the result that occurs with the beet, for instance, for the carbohydrate of the beet occurs largely in the form of sucrose, and only a trace of reducing substance is found until after hydrolysis.

TABLE 3.—EFFECT OF TEMPERATURE ON EXTRACTION

Vegetable	Beet	Cabbage	Carrot	Eggplant	Parsnip	Pineapple
Boiling Extraction						
Number of extracts showing reduction test	2	8	6	7	6	9
Percentage of reducing substance extracted and calculated as glucose	Trace	2.5	1.8	2.1	8.6	3.2
Fermentation of extract with yeast	+	+	+	+	+	
Percentage of reducing substance in salivary extract of residue	....	Trace	0	0	0.4	
Iodin test for starch: Fresh vegetable	0	....	Trace	0	+	0
Cooked vegetable	0	....	Trace	0	+	0
Extract	....	....	0	0	+	0
Sixty C. Extraction						
Time required to free from reducing substance	1 hour	? Little affected	1½ hrs.	2 hrs.	1 hour	3½ hrs.

An attempt was made to extract carrots with cold water. The finely sliced vegetable was put into a heavy bag, which was fastened to the tap, and water at full pressure was forced through the bag for twenty hours; but this plan of diffusion with cold water removed only a very small amount of the reducing substance of the carrot.

These tests are preliminary to more extended work along the same and similar lines. Other foods may well be modified by these methods, and other methods of modification may suggest themselves for trial.

CONCLUSIONS

Repeated water extraction as employed in the "thrice-washed" or "thrice-cooked" vegetables is more effective in removing carbohydrates from some foods than from others.

The effectiveness of the extraction at 60 C. in the case of the beet and carrot suggests the possible advantage of using the lower temperature in the preparation of other foods.

TABLE 4.—COMPARISON OF RESULTS OF EXTRACTIONS AT BOILING TEMPERATURE AND AT 60 C.

	Reducing Substance per Hundred Gm. Carrots	
	100 C. Extraction	60 C. Extraction
Total extract:		
Reducing substance before hydrolysis.......	1.5 gm.	1.2 gm.
Reducing substance after hydrolysis........	1.9 gm.	1.6 gm.
Residue:		
Reducing substance after hydrolysis........	0.5 gm.	0.7 gm.
Reducing substance after salivary digestion	Trace	0.14 gm.

If the soluble carbohydrate is in an available form, the repeated extractions are justified, provided that the resulting product is still reasonably palatable. If, however, the carbohydrate is not available, as in the case of mushrooms, the process is useless.

Information concerning the nature and physiologic significance of the carbohydrate will lead to a rational method of procedure in the preparation of the foods.

PROLAPSUS UTERI AND ITS TREATMENT *

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It is not the purpose of this short paper to bring forth a new method for the treatment of uterine prolapse, nor is it my intention to enter into a detailed discussion of the technic of the various operations now in vogue. I feel that much has been said and written on the subject. To me it seems that the entire subject of pelvic hernia has in the past been viewed from the standpoint of repair only. The inventive powers of the gynecologist have been heretofore directed toward the development of a newer and better technic for the construction and their replacement of tissues and organs in the proper places. True, this resulted in the development of one of the most ideal operations, and one which may be performed in the case of the largest percentage of patients suffering from uterine prolapse, namely, "the vaginal fixation or interposition operation."

This operation, if well performed in properly selected cases, completely cures the patient. No other single or combined surgical procedure accomplishes such desirable results. It is surprising to note that many gynecologists, however, still resort to other means to correct this condition, the most troublesome to which middle-aged women are subject. Is it because the interposition operation presents a more difficult technic? Or is it because a great number of gynecologists are better trained in the older methods and refuse to progress?

It seems to me that in the light of our present knowledge there should not be a difference of opinion as to the indications and contraindications for this operation. However, while it is true that we have perfected a good surgical technic for the cure of pelvic hernia, yet it appears to me that no attempt has been made by either the gynecologist or the obstetrician to seek deeply into the causes which bring about the various degrees of hernia of the vaginal vault, resulting from childbirth. Poor obstetrics is usually the reason assigned in a large percentage of cases. Now, is this true? It has been my good fortune to be associated with large obstetric services since the days of my early training. I had unusual opportunities to observe both normal and abnormal obstetrics as it is practiced in hospitals. I also had the advantage of examining and carefully watching a large number of patients in my office during their antepartum period. I tried to correlate the size and consistency of the fetal head, the nature of the labor; whether short, spontaneous or instrumental, with the findings after a careful examination — six or eight weeks postpartum. I was soon convinced that the history of the labor, and the size of the child, very often did not coincide with the postpartum findings. Some of the most severe forms of procidentia were discovered in patients who had very easy deliveries. Again, very often few local disturbances were discovered, even after the most difficult instrumental delivery.

It seems to me that the causes for prolapse of the pelvic viscera is still not thoroughly established. Studies of the anatomy of the pelvic floor in cases of prolapse do not disclose all the etiologic factors. They simply reveal an existing condition as a result of trauma. The anatomist, during his studies, is not familiar with the obstetric history of the patient. He is unable to judge what were the mechanical factors concerned in the production of these anatomic distortions. I believe that if it were possible for the anatomist to observe the mechanical processes of a given case of labor and then study the structures of the pelvic outlet, he would reach a more definite conclusion as to the reasons why normal labor will very often cause prolapse of the pelvic viscera. To illustrate, let me quote from one of the most illuminating articles on the subject of repair of the pelvic outlet, by Haynes. He says:

> The lesions considered in this paper are produced at childbirth by the passage of the child through the parturient canal, either unassisted or aided by the use of forceps.
>
> Probably the premature application of the forceps or their faulty adjustment or ignorant use, contributes to the production of tears of the pelvic outlet. Indeed it is probable that the rarer form of rupture of the levator ani muscle close to the pelvic arch is due solely to the cutting action of the blade of the badly applied or used forceps.
>
> At birth, then, the child must pass through the pubococcygeal loop of the levator muscle, through the gap in the perineal shelf, and through the vaginal slit in the pubococcygeal hammock. . . .
>
> This passage is usually made without any material damage when the normal conditions affecting mother, child and time prevail by the gradual stretching of the structures composing the different layers. However, there may be such a disparity between the size of the child and the potential passageway or the birth so precipitate, that all the structures are torn through into the rectum or into the ischiorectal fossa. Between these two extremes there are all grades of lacerations.

We all agree as to the truth of these statements when generally applied, but the description, while

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

comprehensive, fails to include a very essential element of the etiology of this condition, namely, a competent and complete obstetric history of the patient.

Personal observations have led me to believe that the three factors which are concerned with the production of visceral and pelvic prolapse are:

1. The construction of the bony outlet.
2. The general muscular development of the patient, especially as regards the muscles of the pelvic outlet.
3. The size of the child, particularly in cases which are overdue.

It is an established clinical fact that lacerations of the posterior pelvic segment, even when left unrepaired, do not produce prolapse of the pelvic organs. However, lacerations of the structures of the anterior portion of the pelvis will as a rule result in the prolapse of the bladder and uterus.

A study of the anatomy of the bony outlet very soon discloses the reason why, in some patients, the posterior segment is damaged, while in others the lacerations will take place in the anterior segment. The studies of Klien of the measurements of the pelvic outlet prove conclusively that the various dimensions of the bony outlet have a definite bearing on the course of labor. The relationship in the size of the anterior sagittal and the posterior sagittal line to the transverse diameter of the outlet will decide whether the head will be born at the expense of the anterior segment or of the posterior segment of the outlet. If for some reason the posterior sagittal line is contracted, the head will have to be born at the expense of the anterior segment of the bony outlet. Here the fetal head encounters the soft parts of the anterior portion of the pelvic outlet, and if the strain is too great they give way and the support of the bladder and uterus is practically removed. If, however, the anterior sagittal line is shortened and the head has to be born at the expense of the posterior pelvic segment, lacerations of the perineum will take place. A rectocele will ensue; but the actual supports of the bladder and uterus have not been interfered with.

The development of the bony pelvis is entirely neglected in the present scheme of practical medicine. The young growing girl is not given the proper care she deserves. To prepare womanhood for future motherhood requires more than passing attention. As obstetricians we must anticipate all possible defects in the development of these girls and correct them if possible.

TABLE 1.—AGE OF PATIENTS OPERATED ON

Age, Years	Number of Cases
Below 30	8
Between 30 and 40	28
Between 40 and 50	35
Between 50 and 60	21
Over 60	8
Total	100

As to the muscular development and tone, it is plain that the two intracranial glands, hypophysis and epiphysis, normally exercise a remarkable influence on the nutrition and skeletal growth. A perversion or dysfunction of one or more of the internal secretions very often may be observed at a time when proper treatment will correct it. The reason for its neglect is the ignorance of the mother. If the mothers were taught that any disturbance of metabolism in the young girl, or any apparent sexual disorder, requires attention, she would seek proper medical aid. We must ignore the conventional barriers in the treatment of the unmarried woman, as we do in the unmarried man. To modern social conditions must also be attributed an undoubted pernicious influence on childbirth. The forcing of a great number of young women to enter the industrial field early in life where they are compelled to engage in sedentary occupations prevents their physical development. This has created a large percentage of women who are unable to deliver themselves spontaneously.

The size and consistency of the fetal head surely plays an important part in the causation of pelvic lacerations and relaxations. In this instance I feel that the obstetrician is entirely to be blamed. We have no right to allow a primipara to be overdue an unreasonable time. The child grows unusually large, and the cranial bones become hard and do not mold readily. These patients are exposed to the danger of dystocia when labor sets in. It can be obviated by a timely induction of labor.

TABLE 2.—RELATIVE PARITY OF PATIENTS

Parity of Patients	Number of Patients
Primiparas	5
Secundiparas	13
Tertiparas	10
Quadriparas	12
Quintiparas	6
Sextiparas	7
Septiparas	7
Octiparas	1
Noniparas	4
Deciparas	6
Undeciparas	2
Duodecipara	1
Tredeciparas	3
Quattuordeciparas	1
Septendeciparas	1

Once hernia of the pelvic outlet occurs, the problem is, What means have we at our command to correct it? Many operations have been devised; none, however, answered the purpose until the interposition operation had been perfected. This operation is of comparatively recent adoption in this country. It is only a short time that the combined abdominal vaginal operations have been performed in all of these cases. The results were poor because the anatomy of the anterior vaginal wall and that of the bladder were not taken into consideration. Usually the cystocele recurred in a very short time, and the patient felt that she was subjected to a useless operation.

We must, however, realize that the technic of this operation varies with each case. The condition of the cervix, the extent of the cystocele and the size of the body of the uterus will tend to modify the various steps in the operation. To my mind, the most important single step in this operation in any given case is to decide the exact point of fixation of the anterior wall of the uterus to the roof of the vagina. Should the uterus be fixed too high, we may have undue pressure symptoms of the neck of the bladder; and if fixed too low, the patient will always have a bearing down sensation in the vagina. For the purpose of this study I collected 100 instances in which the interposition operation was performed. Ninety of these are from the gynecologic service of Lebanon Hospital, and ten from the Jewish Maternity Hospital. I included in this series only those patients that were admitted to the hospital with the diagnosis of prolapsus uteri. Patients who suffered from lesser degrees of prolapse of the pelvic viscera, and on whom this operation has been performed, are not included in this series. I feel that in those cases other methods could possibly have been substituted.

During the childbearing period it is important that these patients should be sterilized. This is accomplished by resection of the tubes from the horns of the uterus and the stitching of the cut ends into the sides of the uterus at a point slightly lower than the original tubal opening. A few of our earlier patients were not sterilized, and in some pregnancy ensued. In all these patients labor was very complicated. The dystocia was primarily due to the high situation of the sluggishly dilating cervix in the bony pelvis. The altered axis of the uterine cavity caused the presenting part to rest against the promontory of the sacrum. The force of the uterine contractions pushed the fetal part beyond the axis of the inlet and thus prevented the part from engaging itself in the true pelvis.

A number of patients aborted before the end of the third month, as the uterus was firmly adherent anteriorly and could not rise above the brim.

Table 1 gives a statistical report of the patients operated on. The average age of the patients was 43.9 years. The youngest patient was 25 years old, the oldest 68.

The number of children the patients had was stated in eighty-three cases (Table 2).

Four were never pregnant.

The date of the birth of the last child is stated in fifty-four cases in Table 3.

The menstrual history was normal and regular in seventy-one cases.

In twenty-nine cases, menopause occurred. Relief for this condition was sought soon after the patient noticed something protruding from the vagina. Seven of these patients were operated on previously for the relief of the procidentia with little or no benefit. Forty-nine patients were treated by vaginal pessaries for a period of from two to twenty years.

In a number of patients, other pathologic conditions of the uterus and adnexa were encountered. On one patient, salpingo-oophorectomy was performed. In two cases, cystic ovaries were removed. In one case, resection of the ovary was performed. In one case, a right diseased tube was removed. In three cases, small uterine fibroids were enucleated from the uterine wall. In one case, a uterus bicornis was found.

TABLE 3.—TIME BETWEEN THE BIRTH OF THE LAST CHILD AND THE PERFORMANCE OF THE INTERPOSITION OPERATION

Birth of Last Child	Number of Cases
Six months after	6
One year	3
Two years	5
Three years	5
Four years	6
Five years	5
Six years	1
Seven years	2
Eight years	3
Nine years	1
Ten years	1
Eleven years	2
Thirteen years	1
Sixteen years	2
Seventeen years	3
Twenty years	2
Twenty-one years	2
Twenty-three years	1
Twenty-nine years	2
Thirty-one years	1

POSTOPERATIVE COMPLICATIONS

It is interesting to note what little postoperative reaction took place in this series of cases. Most of them were fairly comfortable on the second or third day after the operation. The pain they usually suffered was that of a perineal wound. Only seven patients had marked postoperative temperature of 103 or more. Three patients had a temperature of between 102 and 103. The remaining patients had a slight rise or normal temperature. Three patients developed edema of the vulva, which cleared up at the end of a week.

Ten days after the operation one patient developed pyelitis of the right kidney, which cleared up before she left the hospital.

One patient developed temporary insanity one week after the operation. Her condition improved when she was discharged from the hospital.

TABLE 4.—EXTENT TO WHICH CATHETERIZATION WAS EMPLOYED

Number of Cases	Number of Days
In 14	1
In 12	2
In 5	3
In 9	4
In 8	5
In 2	6
In 6	7
In 5	9
In 5	10
In 5	11
In 1	12
In 2	14
In 1	16

One patient developed a pelvic abscess. The pus was evacuated by an abdominal incision. A vesicovaginal fistula developed which was closed about six weeks later.

Most of these patients have to be catheterized because of the inability of the bladder wall to contract on account of the extensive denudation and separation of the bladder from the vaginal wall and the anterior uterine surface. However, fourteen of these patients voided spontaneously.

The average period of time these patients were confined to bed was eighteen days. The average stay in the hospital was twenty-five days.

Finally, it is my firm belief that with the improvement in the practice of obstetrics, hernia of the pelvic viscera will be greatly diminished. Relative disproportion between the fetal head and the pelvis causing tedious and protracted labor must necessarily either stretch or lacerate the soft parts of the pelvis which eventually produces a prolapse of the uterus and the bladder. It is the duty of the obstetrician to recognize this condition sufficiently early so as to prevent its occurrence.

Furthermore, I feel that a great deal can be accomplished by carefully watching the development of the young girl; and as soon as disturbances, either of a constitutional or a local nature, are noticed, treatment must be promptly instituted, for only in that way can she be prepared for future motherhood.

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ABSTRACT OF DISCUSSION

Dr. Frank L. Newton, Boston: We see many of these patients neglected, and the young women not being prepared to bear children. Pregnancy is not essential to prolapsus. One case coming under my observation is typical of many. The young woman came to our city from a neighboring state. The physician sending her said she needed hysterectomy. There was a virgin girl with prolapsed uterus who had been treated year after year with tampons and other measures. I had her examined by Dr. Fitts. When he was through I asked if he saw any necessity for doing hysterectomy. "Hysterectomy!" he said. "Why there is prolapse of the uterus, and prolapse of the stomach as well. If you take out one, why not the other?" This case illustrates, I think, the fact that the obstetric condition is not a necessary cause of prolapse. In another case, that of an older woman, married but never pregnant, there had been prolapse for years; absolutly complete procidentia, with all the parts intact. In the treatment of prolapsus uteri we must meet the conditions. If we find a large, eroded cervix in a woman who has borne a number of children, I would amputate it thoroughly, believing that here we have a field for carcinoma. The presence of a fibroid might be an indication for hysterectomy, but do not remove the ovaries and tubes even if operation is performed through the vagina. Do your pelvic plastic work yourself; such work needs an artist. Rather let your assistant carry out the abdominal procedure.

Dr. Jacob A. Ruben, Pittsburgh: Until a method gives us 100 per cent. permanent cures in prolapsus uteri, the last word has not been said on its treatment. Preparing a woman to be a mother is an enormous field in itself, which I will not touch on. I only want to call attention to the big factors underlying the causes of prolapse. It occurs primarily under two fundamental conditions: (1) the destruction or weakening of the muscular support of the pelvis; (2) the displacement of the uterus from pointing backward toward the hollow of the sacrum. In a woman who has borne two or more children, the muscles of the urogenital diaphragm are reduced to connective tissue. The levator ani alone forms the pelvic diaphragm. If in such a woman the levator muscle is torn through, we have the primary condition favoring prolapse. Physiologically and anatomically speaking, the key to all prolapse operations must be the construction of a high, muscular perineum and the replacing of the uterus and bladder in their normal positions.

Dr. Harry Aranow, New York: In a study of 4,000 or 5,000 cases I have been convinced that while a tear of the perineum may be a cause of prolapsus in some cases, in the majority of instances it is not. In a complete laceration of the perineum there is rarely a prolapse. It is the woman with a long, narrow chest and a thin abdominal wall who is likely to have prolapsus whether she has had a bad tear or not.

I have had the good fortune to have the care, in subsequent confinements, of two interposition cases in which operation was performed by Dührssen in this city. There were no complications. Of course I would not advise anybody to perform an interposition operation in a young woman. I simply mention the two cases which came under my care as house surgeon. Dr. Dührssen closed up the peritoneum very carefully and brought the uterus forward as we used to do in ventral suspension.

The operation of interposition is a very complicated procedure, with many factors to be considered. I had one case in which the woman was between 70 and 80 years of age, with complete prolapsus. The cervix was suspicious in appearance, the uterus exceedingly small. The patient was sent to me for an interposition operation. I said it was impossible. Instead I performed a Mayo vaginopelvic fixation operation, bringing the two round ligaments across, making a bridge for the bladder, and the woman made an uneventful recovery. Again, in a case of this sort, with a large heavy uterus, one cannot perform an interposition operation; nor in a very young woman who has not had children and who is anxious to have them. Interposition without sterilization is rather dangerous.

Dr. Harvey P. Jack, Hornell, N. Y.: Perhaps some day we may know more about the internal secretions and be able to administer the particular one needed. Speaking practically, however, we are faced with a young woman of from 20 to 25—several of whom I have had—with complete prolapsus. Are you going to subject that woman to hysterectomy with the consequent nervous conditions? Are you going to do an interposition operation with all its dangers? No. Amputate the cervix, shorten the round ligaments and allow that woman to go on. You have not and cannot cure her. You have given her a chance that she may develop and bear babies and be a regular woman. It is not right to allow the teaching to go out that the interposition operation ought ever to be considered. Some men may be able to do it, but when they succeed they beg the question; they do a suspension. We have no right to condemn these young women to difficult labors or the inability to have children. We must deal with the practical things until we know more of that which is not now understood. Therefore, I think this section should condemn absolutely the interposition operation. You can cure the prolapsus without it and leave the woman with a function.

Dr. Abraham J. Rongy, New York: To my mind there are two causes for prolapsus—indirect and direct. I believe that the young girl, as soon as she reaches puberty, ought to be obliged to see whether she is developing properly. I believe the question of the internal secretions will solve the matter in the near future, and that we shall be able to influence growth and development. Regarding the interposition operation, in a young woman of 25 or 26 who has had one or two children and is anxious to have more, I never advise operation. I try, rather, some form of pessary to help her, and advise that after she is through having babies such operation might be considered. In a woman who has had two or three children and who is not anxious to have more, the interposition operation comes into play and there is no operation that does the work so well. I firmly believe that intra-abdominal pressure has very little influence on prolapsus; it acts as a secondary factor when things are once relaxed and out of place. Dr. Spalding of San Francisco said that in a number of cases in the second stage of labor when the labor became tedious he separated the perineum down to the rectum in order to shorten the labor. In these cases when the head has been born at the expense of the anterior segment, I think it will be the ideal plan to separate the posterior pelvic segment and the perineum in order to allow the head to come down to the posterior part of the pelvis and not stretch the supports of the uterus.

THE INTRAVENOUS PHLORIZIN TEST*

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Phlorizin is a glucosid which was discovered by de Koninck in 1855. It is derived from the root-barks of various fruit trees, which, when brought to boiling in acid mediums, give off a glucose called phlorose, and a glycogen, the so-called phloretin.[1] Phlorizin occurs in minute and slightly pinkish crystals, and is sparingly soluble in cold water, alcohol and ether, but freely soluble in hot water from which solution it crystallizes out on cooling.[2] In 1885, von Mehring[3] found that phlorizin produces glycosuria in man. Ten years later the first statement in regard to the renal origin of phlorizin glycosuria was made by Zuntz,[4] who, after introducing cannulas into the ureters of a dog, exposed one kidney, into the renal artery of which phlorizin was injected, with the result that sugar appeared first and in greater amount from the ureter of the injected kidney. That phlorizin diabetes undoubtedly originates in the kidney was, later on, proved by Pavy, Brodie and Sian's[5] experiment. After removal of all abdominal viscera except the kidneys of a dog, phlorizin was injected, with the result that no increase in the quantity of blood sugar ensued, while the urine contained a large amount of sugar.

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* Read before the Section on Genito-Urinary Diseases at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

[1] Kapsammer: Nierendiagnostik und Nierenchirurgie, 1, 87.

[2] New and Nonofficial Remedies, The Journal A. M. A., July 3, 1909, p. 33.

[3] Von Mehring: Centralbl. f. d. med. Wissensch., 1885.

[4] Zuntz: Arch. f. Anat. u. Physiol., 1895.

[5] Pavy, Brody and Sian: On the Mechanism of Phlorizin Glycosuria, Jour. Physiol., 1903.

Less convincing as regards exact proofs were experimental investigations aiming at localization of sugar formation in the kidney. Seelig,[6] after transforming glucose in the kidney into *phenylglucosazone*, studied onset and extension of sugar formation microscopically, and from the appearance of large numbers of glucosazone needles at and around the collective tubules, he concluded that sugar excretion occurred almost entirely by means of these channels. Nussbaum,[7] who had found that the glomeruli of the frog kidney were exclusively supplied by the renal artery, concluded, from the absence of sugar in the urine after ligation of that vessel, that sugar formation occurred solely in the glomeruli. Nussbaum's findings, though, were refuted by the investigations of Adami[8] and later on by those of Beddard,[9] who discovered anastomoses between the renal artery and vein in the frog kidney, while the observations of Hellin and Spiro[10] on phlorizin sugar excretion in rabbits with experimental nephritis pointed to the epithelial cells as the principal seat of renal sugar formation. Thus the problem of exact localization of renal glycosuria, which would have cleared up many points of apparent incongruity in the application of the phlorizin test, is still awaiting its final solution.

TABLE 1.—RESULTS OF BLADDER TEST BY MEANS OF INTRAVENOUS INJECTIONS OF 2 C.C. OF 0.5 PER CENT. PHLORIZIN IN NORMAL CASES

Number	Sex*	Age	Diagnosis	Appearance Minutes	Fifteen-Minute Periods			Remarks
					First	Second	Third	
1	♂	26	Chronic prostatitis	12.5	0.72	0.36	0.04	
2	♂	52	*Pelvic osteosarcoma*	9	0.54	0.15	0.0	*Qualitative determination with Fehling's solution*
3	♀	63	Carcinoma vesicae	6.5	0.9	0.4	0.0	
4	♂	28	Bilateral inguinal hernia	8	1.11	1.7	0.31	
5	♂	40	Sexual neurasthenia	6	0.7	0.28	0.21	
6	♂	33	Sec. syphilis	10	0.6	0.2	0.0	Quantitative determination with Lohnstein's saccharimeter
7	♂	32	Sexual neurasthenia	6	1.4	0.4	0.0	
8	♂	27	Sexual neurasthenia	4.5	2.9	1.6	0.25	
9	♂	42	Chronic prostatitis	6	0.64	2.8	0.2	
10	♀	24	Chronic pelvic gonorrhea	8	3.75	2.66	0.62	
Average				7.65	1.25	1.05	0.16	

* In this column ♂ denotes male and ♀ female.

TABLE 2.—RESULTS OF BLADDER TEST BY MEANS OF INTRAVENOUS INJECTIONS OF 2 C.C. OF 0.5 PER CENT. PHLORIZIN IN PATHOLOGIC CASES *

Number	Sex	Age	Diagnosis	Appearance Minutes	Fifteen-Minute Periods			Remarks
					First	Second	Third	
1	♂	62	Prostatic hypertrophy	26	0.3	0.06	0.05	
2	♂	77	Rightsided calculous pyonephrosis	7.5	1.6	0.6	0.0	No reduction with Fehling's after 90 minutes
3	♂	35	Rightsided renal tuberculosis	25	0.1	1.6	0.3	
4	♂	69	Prostatic hypertrophy; complete retention	11	1.6	0.3	0.14	No reduction after 2 hours
5	♂	73	Prostatic hypertrophy; chronic myocarditis	8.5	1.7 1.6	0.94 0.01	0.4 0.0	Reduction ceased after 60 minutes Reduction ceased after 90 minutes
6	♂	68	Carcinoma of prostate	10				
7	♂	76	Carcinoma of prostate	30	0.1	0.1	0.0	*Reduction ceased after 40 minutes*
8	♂	70	Carcinoma of prostate	20	0.7	0.3	0.0	
9	♂	60	Prostatic hypertrophy; chronic nephritis	15	0.3	0.0	0.0	*No reduction after 55 minutes*
10	♂	63	Cancer of bladder; leftsided pyelonephritis	11	0.1	0.0	0.0	*No reduction after 60 minutes*
Average				16.4	0.81	0.391	0.089	

In 1896, G. Klemperer,[11] who was the first to use phlorizin on renal lesions in man, reported absence of glycosuria in chronic nephritis after giving large doses of phlorizin internally. This method of administration was soon afterward branded as inefficacious by Magnus Levy,[12] who pointed out that phlorizin, by these means, reached the kidneys in an already broken form, and who, after hypodermic injection of the drug, observed glycosuria in various forms of pathologic kidney conditions. In 1899 Achard and Delamare,[13] on the basis of fundamental experimental investigations, stated that reduction or total absence of phlorizin glycosuria was characteristic of kidney diseases complicated by definite loss of renal parenchyma. On these facts Casper and Richter[14] based their application of the test in the form of hypodermic or intramuscular administration of the drug in conjunction with ureteral catheterization. In this way they were able to study the action of the drug separately on either kidney, and to utilize the test as a comparative index of functional renal capacity in unilateral kidney lesions. According to their statement, the phlorizin test measures the quantity of functionating renal parenchyma and, by these means, that of renal capacity, the percentage of excreted sugar corresponding to the amount of functionating parenchyma of the kidney. When these statements failed to be entirely corroborated by personal observations of various authors, and particularly after Israel's[15] demonstration of kidneys that had been found barren of phlorizin glycosuria, though possessing functionating parenchyma, Casper and Richter[14] modified their views, stating that absence of phlorizin glycosuria was significant of an advanced degree of renal incapacity, while its quantity was directly proportional to that of the functionating parenchyma of the kidney.

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[6] Seelig: Deutsch. med. Wchnschr., 1900.

[7] Nussbaum: Arch. f. Anat. u. Physiol., 1906.

[8] Adami: Jour. Physiol., 1885, **6**.

[9] Beddard: Jour. Physiol., 1902, **28**.

[10] Hellin and Spiro: Arch. f. exper. Path. u. Pharmakol., 1897, **38**.

[11] Klemperer, G.: Verhandl. d. Ver. f. inn.. Med. zu Berlin, 1896.

[12] Levy, Magnus: Verhandl. d. Ver. f. inn. Med. zu Berlin, *1896.*

[13] Achard and Delamare: Soc. de Biol., *1899*, **21**, 1.

[14] Casper and Richter: Funktionelle Nierendiagnostik., Berlin-Wien, 1901.

[15] *Israel: Mitt. a. d.* Grenzgeb. d. Med. u. Chir., 1903.

For the application of the test, the following technic was finally adopted: As soon as both ureters are catheterized, 2 c.c. of a 0.5 per cent. phlorizin solution (0.01 gm. of the drug) are injected hypodermically, one thigh being preferably selected as the site of injection. Only fresh solutions, never more than two weeks old, are used, and thorough dissolving of phlorizin crystals is effected by placing the phlorizin container in a water bath from which it is removed the moment the boiling point is reached. The phlorizin solution is then drawn directly from its container into the syringe and at once injected. The appearance of sugar, which normally occurs about fifteen to twenty minutes, and not later than thirty minutes after phlorizin injection, is ascertained by means of test tubes containing small amounts of heated Fehling's solution, and urine portions for quantitative sugar determination are collected during the next fifteen to thirty minutes, during which period phlorizin sugar excretion is known to be at its climax. Thus, the whole test can, in most instances, be finished in about an hour.

TABLE 3.—RESULTS OF RENAL TEST IN NORMAL CASES: COMPARATIVE VALUES OF PHLORIZIN

No.	Sex	Age	Diagnosis	Fifteen-Minute Periods						Remarks
				First		Second		Third		
				R.	L.	R.	L.	R.	L.	
1	♀	28	Chronic urethritis and trigonitis..	1.06	1.22	0.2	0.3	0 00	0.00	No reduction with Fehling's after 37 min.
2	♂	40	*Chronic prostatitis*..............	*4.0*	3.0	3.6	1.2	0.2	0.0	No reduction after 35 minutes
3	♀	42	Functior [illegible]	*0.2*	0.2	0.0	0.0	0.0	0.0	No reduction after 35 minutes
4	♀	30	Chron c [illegible]	*2.0*	2.0	1.0	1.0	0.12	0 12	Trace figured as 0.1
5	♂	45	Chronic [illegible]	1.52	1.68	Trace	Trace	0 0	*0.0*	
6	♀	35	Chronic pelvic peritonitis........	1.56	1.4	Trace	0.5	0.0	0.0	
7	♂	30	[illegible]	1.36	1.38	0.61	0.98	0.0	0.15	No reduction after 75 minutes
8	♂	38	[illegible]	4.8	4 0	*0.2*	*0.2*	0.01	0.01	
9	♂	35	[illegible]	1.25	1.0	0.25	0.2	0.0	0.0	
10	♂	40	[illegible]	1.7	2.0	1.24	1.56	0.92	1.14	No reduction after 70 minutes
Average................				1.95	1.70	0.73	0.6	0.12	0.14	

TABLE 4.—RESULTS OF RENAL TEST IN PATHOLOGIC CASES: COMPARATIVE VALUES OF PHLORIZIN

No.	Sex	Age	Diagnosis	Fifteen-Minute Periods						Remarks
				First		Second		Third		
				R.	L.	R.	L.	R.	L.	
1	♂	56	[illegible]	0.18	0.12	0.0	0.0	0.0	0.0	No reduction with Fehl'ng's after 37 min.
2	♂	30	[illegible]	0.9	1.1	*0.5*	*0.3*	0.01	0.0	No reduction after 40 minutes
3	♀	28	[illegible]	0 8	0.56	*0.02*	*0.03*	0.18	0.01	No reduction after 45 minutes
4	♀	43	[illegible]	0.66	0.52	*0.2*	*0.04*	0.0	0.0	No reduction after 78 minutes
5	♂	46	[illegible]	0.35	1.9	Trace	Trace	0 0	0.0	Trace counted as 0.01
6	♂	30	[illegible]	0 3	1.7	*0.0*	1.15	0.0	0.88	
7	♀	36	[illegible]	0.1	0.8	*0.0*	0.6	0.0	0.5	
8	♀	46	[illegible]	0.59	0.56	*0.3*	0.2	0.35	0.28	Microscopically: Many pus cells on right side; only a few pus cells on left side
9	♂	32	Rightsided pyelonephritis.........	0.42	0.62	*0.28*	0.35	0.1	0.2	
10	♂	26	Leftsided nephritis...............	0.52	0.48	*0.2*	*0.06*	0.1	0.05	
Average................				0.48	0.83	0.15	0.27	0.07	0.19	

Inaccurate dosage, resulting from loss of water, or precipitation of crystals on cooling of the phlorizin solution, is obviated by strict adherence to these technical details, which must be carried out under trained supervision. Quantitative sugar determination is afterward done by means of Lohnstein's saccharimeter, for which only 0.5 c.c., or about 8 minims, of urine suffice; in order to insure accuracy of comparative results, three saccharimeters, two for both renal urines and the third for distilled water as control, are employed.

The literature contains either insufficient or no data concerning the technic of phlorizin application, of which we can find only brief mention in Kapsammer's[16] book. Omission of a description of technical details in textbooks and publications on the subject is, according to our experience,[17] probably responsible for the often reported failures in obtaining glycosuria, whereas we in our extensive practical work with the test have had no difficulty in that direction.

The test was soon recognized as one of our most important means for estimating relative kidney function. Israel,[18] who always maintained a skeptical attitude toward the real value of functional kidney tests, designated the test as a welcome addition to our diagnostic armamentarium, and Albarran[19] concedes to the method real usefulness. Barth[20] considers the test particularly important for the diagnosis of difficult cases, and Kapsammer[21] claims for the phlorizin test first rank among renal functional methods. Greene and Brooks[22] designate the test the most practical of functional methods, a view from which they have not departed in the latest edition of their textbook. Our own results with the test were most gratifying, and careful comparison with the results from other functional tests, especially from phenolsulphonephthalein, brought forth this statement:[23] The phlorizin, phenolsulphonephthalein and urea tests show in normal cases almost identical values for both kidneys, and exhibit in pathologic cases a striking parallelism of diminished functional values. As compared with the phlorizin method, the phenolsulphonephthalein test is subject to fewer technical errors and is less time-consuming, while the possibility of exact quantitative estimation of excreted sugar renders the phlorizin test much more reliable than the phenolsulphonephthalein test.

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[16] Kapsammer: Nierendiagnostik und Nierenchirurgie, **1**, 92.

[17] Krotoszyner: Am. Jour. Dermat., **11**, 9.

[18] Israel: Berl. klin. Wchnschr., 1902.

[19] Albarran: Exploration des fonctions rénales, Paris, Masson, 1905.

[20] Barth: Arch. f. klin. Chir., 1903, **71**.

[21] Kapsammer: Nierendiagnostik und Nierenchirurgie, **1**, 100.

[22] Greene and Brooks: Diseases of the Genito-Urinary Organs, Philadelphia and London, 1917, p. 85.

[23] W. E. Stevens: The Comparative Value of Modern Functional Kidney Tests, THE JOURNAL A. M. A., May 16, 1914, p. 1544.

THE INTRAVENOUS TEST

Thus, the cumbersome technic and the length of time required for its performance appeared to be the most important objectionable features tending toward sidetracking or even eliminating the hypodermic phlorizin test in favor of the more commodious and expeditious phenolsulphonephthalein method. Success in meeting the first drawback depended obviously on the possibility of bringing the glucosid to the cystoscopic room in a vehicle in which it could be kept indefinitely in solution without, by precipitation of phlorizin crystals, losing its efficacy, and at the same time insuring the uniformity of results which generally attends the employment of phenolsulphonephthalein. For these purposes we experimented, at first, with ampules, similar to the familiar type in use for the phenolsulphonephthalein test, and containing the required amount of phlorizin in a nonprecipitating, 0.25 per cent. solution, as recently suggested by Greene.[24] However, by extensive experimentation, including comparative tests with fresh phlorizin solutions, it was found that ampule efficacy became vitiated in the course of time, four months constituting the limit, after which it was either considerably lessened or entirely extinct. While, therefore, not recommending ampule administration for general use, as involving the risk of inaccuracy, we would, nevertheless, suggest the exclusive use of this most commodious method of phlorizin application for large urologic clinics in which routine renewal of ampules could easily take place every month. For the average urologist, however, we advise the use of tablets, which we finally succeeded in devising, and which were made for us after the following formula: phlorizin, 0.01 gm., and sodium chlorid sufficient to make 0.03 gm.

Phlorizin injection by means of these tablets is a simple and expeditious procedure. The tablet is placed in the barrel of an all-glass Lüer syringe, into which, after adjustment of the needle, 2 c.c. of hot distilled water are drawn up, and injection is made as soon as, by shaking, thorough dissolving of the tablet has been effected.

TABLE 5.—COMPARATIVE RESULTS OF PHLORIZIN, PHENOLSULPHONEPHTHALEIN AND UREA IN NORMAL CASES

No.	Sex	Age	Diagnosis	Phlorizin				Phenolsulphonephthalein				Urea		Remarks
				Appearance		Amount %		Appearance		Amount %				
				R.	L.	R.	L.	R.	L.	R.	L.	R.	L.	
1	♀	32	Urinary frequency; trigonitis	6	6	1.48	1.48	10	7	4	3	0.009	0.011	Quantitative phenolsulphonephthalein determinations made with Hellige colorimeter Comparative urea determination made with Doremus ureometer
2	♂	28	Chronic prostatitis	7	6.5	1.56	1.36	2.5	2.5	13	14	0.015	0.016	
3	♀	35	Urinary frequency; trigonitis	6.5	6.5	1	1	4	4	25	15	0.001	0.001	
4	♀	40	*Cystitis; vaginal catarrh*	5	5	0.4	0.4	3	3	4	4	0.003	0.003	
5	♀	24	Chronic pelvic gonorrhea	4	4	0.3	0.3	2	3	12	15	0.001	0.001	
6	♂	38	Chronic prostatitis	5	5	0.5	0.54	5	5	12	5.5	0.015	0.014	
7	♂	29	Sexual neurasthenia	9	9	1.56	1.66	6	7	11.5	11.0	0.0026	0.0032	
8	♀	34	Caruncle at meatus	5.5	6	0.5	0.26	3	3	10	8	0.0052	0.0056	
9	♂	36	Chronic prostatitis	5	5.5	0.72	0.52	4	4	4	6	0.010	0.015	
10	♀	26	Urinary frequency; *chronic urethritis*	5	4.5	0.6	0.4	4	4	18	25	0.007	0.012	
Average				5.8	5.8	0.86	0.8	4.45	4.25	11.35	10.65	0.075	0.08	

TABLE 6.—COMPARATIVE RESULTS OF PHLORIZIN, PHENOLSULPHONEPHTHALEIN AND UREA IN PATHOLOGIC CASES

No.	Sex	Age	Diagnosis	Phlorizin				Phenolsulphonephthalein				Urea		Remarks
				Appearance		Amount %		Appearance		Amount %				
				R.	L.	R.	L.	R.	L.	R.	L.	R.	L.	
1	♂	30	Rightsided renal neoplasm	7	6	0.08	Trace	4	3.5	Trace	Trace	0.004	0.0012	Trace of phlorizin, figured as 0.01; trace of phenolsulphonephthalein, figured as 0.01; trace of urea, figured as 0.001
2	♀	2[illegible]	Bilateral pyelonephritis	6.5	6	0.8	0.56	6	7	2	9.5	0.002	0.004	
3	♂	27	*Rightsided hydronephrosis*	8	14	0.3	1.7	7	7.5	4	6	0.001	0.0024	
4	♀	33	*Leftsided pyelonephritis*	5	5	1.74	0.86	4.5	5	12.5	4	0.028	0.015	
5	♂	46	Rightsided hydronephrosis	14	5	0.6	0.2	5.5	3.5	4.5	5.5	0.012	0.01	
6	♂	27	Leftsided renal tuberculosis	5	4.5	0.58	0.0	7	7	2.6	0.04	0.02	0.009	
7	♀	30	Leftsided pyonephrosis	5	20	1 0	Trace	3.5	25	18	Trace	0.02	Trace	
8	♂	34	Rightsided renal *tuberculosis*	7	8.5	0.37	2.4	4	4.5	Trace	17	0.013	0.022	
9	♂	56	Bilateral nephrolithiasis	13.5	6.0	0.18	0.12	4.5	4	3	6	0.006	0.008	
10	♀	25	*Rightsided pyonephrosis*	10.5	8	1.3	3.5	3	3	7.5	8	0.005	0.012	
Average				8.1	8.3	0.69	0.93	4.9	4.7	5.4	5.6	0.011	0.0117	

Elimination of loss of time, which would remove the second obstacle to the general acceptance of the phlorizin test, appeared the more imperative, since intravenous administration of phenolsulphonephthalein had of late become established as a rapid and safe comparative functional method. It was only natural that we attempted to attain this end by the same intravenous route.

It was obviously from the start incumbent on us to establish the safety and innocuousness of this mode of phlorizin *administration*. In the literature we could find only one reference disclosing untoward results of large intravenous doses, that of Leschke,[25] who observed experimentally in rabbits grave clinical symptoms (spasms, paralysis of heart and respiration). The same author's statement that, after intravenous administration of large doses of phlorizin, an integral part of the drug was traceable in the blood of nephrectomized animals, was refuted by Glaesner and Pick,[26] who, on the basis of their repeated experimental work, insisted that no trace of enormous phlorizin quantities, up to 3.0 gm., could be found in the blood of nephrectomized animals. Neither did Biedl and Kolisch[27] nor Herszky[28] observe symptoms of kidney irritation or disagreeable by-effects and after-effects consecutive to large doses of phlorizin. For clinical purposes Albarran[19] first advocated the use of comparatively large phlorizin doses (0.02 gm.), which, later on, Casper and others[29] recommended for cases in which ordinary doses failed to produce reactive glycosuria.

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[24] Greene: New York Med. Jour., August, 1915.

[25] Leschke: Arch. f. d. ges. Physiol. (Pflüger's), 1910, **132**, 319.

Since, therefore, small doses, which we administered in the beginning of our work, were productive only of sugar values of such minute quantities as to be practically valueless for purposes of comparative estimation, we did not hesitate to increase the dose cautiously until, by numerous tests on healthy and diseased individuals, we ascertained the fact to our full satisfaction that intravenous phlorizin administration in doses sufficiently large to insure satisfactory duration and intensity of sugar reaction was absolutely harmless and not attended by untoward sequelae. The dose of 0.01 gm. phlorizin, contained in our tablets, was found to be entirely sufficient for ordinary purposes, and even injection of the double dose, which was repeatedly made in cases in which no glycosuria was obtained after the ordinary dose, was never followed by untoward by-effects and after-effects.

Several hundred normal and pathologic cases were tested in this way in order to obtain reliable data on average time of appearance, acme of excretion, and disappearance of intravenous phlorizin glycosuria.

After laborious compilation of our cases we finally decided to utilize for tabulation case groups of equal numbers and representing, wherever feasible, different observations of the same type. By these means we were able to obtain particularly gratifying results for purposes of group comparison.

BLADDER TEST

The bladder test for determination of total renal permeability by means of intravenous phlorizin injection is performed in the following manner: The bladder is emptied by introduction of a catheter which is left in situ, and 1 cg. of phlorizin is injected into one of the arm veins. Testing for sugar is begun at once by letting a few drops of urine flow into test tubes containing a few cubic centimeters of heated Fehling's solution, until typical sugar reaction occurs. The average results of the test under normal and pathologic conditions may be gleaned from Tables 1 and 2.

In cases with normal renal permeability sugar appeared in about seven minutes and in cases with pathologic or reduced renal capacity not earlier than fifteen minutes. In both types of cases, sugar excretion was at its acme during the first fifteen minute period, was markedly reduced during the second, and was very low or had disappeared during the third period.

TABLE 7.—RESULTS OF RENAL TEST IN NORMAL CASES: COMPARISON OF PARALLEL VALUES ON BOTH SIDES FOR PHLORIZIN, PHENOLSULPHONEPHTHALEIN AND UREA

No.	Sex	Age	Diagnosis	Phlorizin		Phenolsulphonephthalein		Urea		Phlorizin Values Compared	Phenolsulphonephthalein Values Compared	Urea Values Compared	Remarks
				R.	L.	R.	L.	R.	L.				
1	♀	30	Urethral caruncle	0.4	0.47	4	4	0.003	0.003	1.0 : 1.2	1.0 : 1.4	1.0 : 1.0	
2	♀	24	Chronic pelvic peritonitis	0.3	0.3	12	15	0.001	0.001	1.0 : 1.0	1.0 : 1.25	1.0 : 1.0	
3	♂	27	Chronic prostatitis	1.24	0.0	12	Trace	0.014	0.014	1.0 : 1.5	1.2 : 1.0	1.0 : 1.0	Trace of phenolsulphonephthalein counted as 0.1
4	♂	26	Sexual neurasthenia	0.5	0.54	12	5.5	0.015	0.014	1.0 : 1.01	2.2 : 1.0	1.07: 1.0	
5	♂	32	Chronic prostatitis	2.0	2.0	12	12	0.016	0.017	1.0 : 1.0	1.0 : 1.0	1.0 : 1.06	
6	♀	20	Enteroptosis	1.16	1.4	None	3	0.007	0.009	1.5 : 1.2	1.0 : 3.0	1.0 : 1.3	
7	♂	23	Chronic prostatitis	1.3	1.2	15	15	0.016	0.015	1.1 : 1.0	1.0 : 1.0	1.07: 1.0	
8	♂	46	Sexual neurasthenia	0.4	0.35	18	18	0.001	0.001	1.1 : 1.0	1.0 : 1.0	1.0 : 1.0	
9	♀	35	Urethritis and trigonitis	0.84	0.84	17	14	0.056	0.06	1.0 : 1.0	1.2 : 1.0	1.0 : 1.07	
10	♀	40	Urethral caruncle and hemorrhoids	1.48	1.48	4	3	0.0095	0.011	1.0 : 1 0	1 33: 1.0	1.0 : 1.16	
Average				1.02	1.091	2.27	1.22	1.014	1.059				

TABLE 8.—COMPARATIVE PHLORIZIN AND PHENOLSULPHONEPHTHALEIN WITH REFERENCE TO QUANTITY OF RENAL URINES IN NORMAL CASES

No.	Sex	Age	Diagnosis	Phlorizin			Phenolsulphonephthalein					Quantity of Renal Urines Compared	Remarks
				Per Cent.		Values Compared	Quantity		Per Cent.		Values Compared		
				R.	L.		R.	L.	R.	L.			
1	♀	48	Urethral caruncle	3.4	2.5	1.0 : 0.7	40	20	12	6	2.0 : 1.0	2.0 : 1.0	Ureter catheters of equal caliber were employed
2	♀	40	Vaginal catarrh; trigonitis	1.0	1.0	1.0 : 1.0	20	10	25	15	1.7 : 1.0	2.0 : 1.0	
3	♂	29	Chronic prostatitis	4.0	3.0	1.3 : 1.0	7	3.5	9	5	1.8 : 1.0	2.0 : 1.0	
4	♀	36	Chronic urethritis and trigonitis	0.84	0.84	1.0 : 1.0	28	20	17	14	1.2 : 1.0	1.4 : 1.0	
5	♀	42	Vaginal catarrh; trigonitis	0.2	0.2	1.0 : 1.0	13	11	7	6	1.2 : 1.0	1.2 : 1.0	Phenolsulphonephthalein tests done after phlorizin
6	♂	35	Phosphaturia	4.5	3.5	1.3 : 1.0	12	12	14	16	1.0 : 1.1	1.0 : 1.0	
7	♂	45	Chronic prostatitis	4.8	4	1.2 : 1.0	7	10	4	6	1.0 : 1.5	1.0 : 1.4	
8	♂	24	Sexual neurasthenia	1.18	1.08	1.1 : 1.0	12	18	2.5	6	1.0 : 2.4	1.0 : 1.5	
9	♂	40	Balanoposthitis	0.92	1.14	1.0 : 1.2	8	7	10.5	9.5	1.1 : 1.0	1.1 : 1.0	
10	♂	46	Sexual neurasthenia	1.65	1.7	1.0 : 1.03	10	9	13	13	1.0 : 1.0	1.1 : 1.0	
Average				2.2	1.8	1.09: 0.99	15.7	12.0	11.4	9.6	1.2 : 1.0	1.38: 1.09	

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26. Glaesner and Pick: Arch. f. d. ges. Physiol., 1910, 133, 82; 135, 176.

27. Biedl and Kolisch: Eighteenth Congress f. inn. Med., Wiesbaden, 1900.

28. Herszky: Med. Blaetter, 1902.

29. Salomon: Berl. klin. Wchnschr., 1909, No. 51.

Our extensive work with the bladder test, which we intend to continue in the future, disclosed in many instances such inconclusive and even contradictory results as to be useless for tabulation. Many problems concerning significance of delayed appearance or entire absence of glycosuria, and relation of percentage to absolute quantity of sugar excretion, are still waiting for their solution. More conclusive evidence is particularly needed with regard to phlorizin as compared with phenolsulphonephthalein estimation. We therefore wish to limit the discussion at this time to a few facts which in the course of our investigations appeared to be fairly well settled.

In normal cases, sugar reaction generally ceased forty-five minutes after its appearance. In pathologic cases, sugar was traceable for considerably longer periods, extending to more or less than an hour, and in a few instances even to two hours. Delayed appearance, which never exceeded seventy-five minutes, did not seem to run parallel to length of sugar reaction. In a few pathologic cases the acme of excretion occurred at a later period than in the normal. In quite a number of cases of arteriosclerosis, contracted kidney, and cancer of the prostate, no sugar reaction occurred, and in only a few of them could delayed and faint sugar reaction be obtained on injection of the double dose of phlorizin. In a few of these cases, in which absence of phlorizin glycosuria persisted, initially poor values of cryoscopy and blood urea gradually approached more normal points coincident with improvement of clinical symptoms. Simultaneous phenolsulphonephthalein tests performed in this type of cases always showed delayed appearance and low, but definitely determinable, phenolsulphonephthalein values. While, on repeated testing, phlorizin sugar appearance and quantity showed such a bizarre and irregular curve as to be void of prognostic significance, phenolsulphonephthalein appearance and output, on the other hand, in the same cases assumed the characteristic curve of rising values coincident with improvement of clinical symptoms.

TABLE 9.—COMPARATIVE PHLORIZIN AND PHENOLSULPHONEPHTHALEIN WITH *REFERENCE TO QUANTITY OF RENAL* URINES IN PATHOLOGIC CASES

No.	Sex	Age	Diagnosis	Phlorizin			Phenolsulphonephthalein					Quantity of Renal Urines Compared	Remarks
				Per Cent.		Values Compared	*Quantity*		*Per Cent.*		*Values Compared*		
				R.	L.		R.	L.	R.	L.			
1	♀	28	Bilateral pyelonephritis	0.8	0.56	1 : 0.7	1.5	6.5	2	9	1 : 4.5	1.0 : 4.3	
2	♂	30	Rightsided renal tuberculosis	0.37	2.4	1 : 6.5	10	30	Trace	17	0.1 : 1.7	1.0 : 3.0	Trace of phenolsulphonephthalein counted as 0.1
3	♂	27	Rightsided hydronephrosis	0.3	1.7	1 : 5.5	14	8	4	6	1 : 1.5	1.75: 1.0	
4	♂	30	Rightsided renal neoplasm	0.03	1.47	1 : 5	3.5	13	Trace	13	0.1 : 1.3	1.0 : 3.7	
5	♂	56	Bilateral nephrolithiasis	0.18	0.12	1.5 : 1	16	7.5	3.5	8	1 : 2	2.1 : 1.0	
6	♀	33	Rightsided pyonephrosis	1.3	2.5	1 : 3	16	3.5	7.5	8	1 : 1	4.7 : 1.0	
7	♂	46	Rightsided hydronephrosis	0.35	1.9	1 : 5	14	7	14	6	2.3 : 1	2.0 : 1.0	
8	♂	30	Rightsided pyelonephritis	0.9	1.1	1 : 1.2	6	2	13	4	3.0 : 1	3.0 : 1.0	
9	♂	25	Rightsided ureter stone	1.2	0.88	1.5 : 1	26	39	10	14	1 : 1.5	1.0 : 1.5	
10	♂	30	Rightsided hydronephrosis	0.36	2.0	1 : 5.5	3.5	10	Trace	9	0.1 : 9	1.0 : 2.9	
Average				0.58	1.56	1.1 : 3.4	11.0	12.6	5.4	9.4	1.6 : 5.1	1.8 : 2.0	

Equally unsatisfactory at our hands was the result of the numerously performed estimations of the total amount of phlorizin glycosuria and of the comparative determination of percentage and absolute quantity of excreted sugar, and, like Casper,[30] we do not attach to these procedures any practical value. We also agree with Blum and Prigl,[31] in refusing to accept unreservedly Kapsammer's statement that normally prompt appearance of phlorizin glycosuria is an absolute proof of normal renal capacity. But we fully endorse Greene's[32] recent statement that delayed appearance of phlorizin sugar rarely occurs in healthy individuals, and we consider persistently delayed onset of phlorizin glycosuria indicative of impairment of renal function.

In a few cases of hematuria in old prostatitics in whom the phenolsulphonephthalein test was impracticable, prompt phlorizin sugar appearance furnished a most welcome prognostic aid for operative indications. In a large number of this type of cases, on the other hand, persistent absence of glycosuria rendered the test useless.

To sum up, in the bladder test the time method of sugar appearance is of value, while quantitative methods are useless. The bladder phlorizin test is not a successful rival to the well-defined, quantitative bladder phenolsulphonephthalein test.

THE RENAL TEST

The technic of the intravenous phlorizin test for determination of comparative renal permeability is identical with that of the bladder test. As soon as bilateral ureteral catheterization is performed, phlorizin is injected and the appearance of sugar is noted on both sides. It was found that intravenous phlorizin glycosuria, when urine is collected directly from the kidneys, appeared normally about five minutes after injection. Quantitative comparative sugar determinations are then made by means of Lohnstein's saccharimeters in the previously described manner.

Tables 3 and 4 show graphically the average acme, decrease and disappearance of sugar excretion in the comparative test.

Average figures for normal cases show a striking parallelism of comparative appearance and percentage in all three tests, with differences so insignificant as to be negligible.

In the group of pathologic cases, the average of phlorizin appearance was considerably delayed on both sides, while figures for sugar percentage on both sides were somewhat smaller than those found in normal cases. Phenolsulphonephthalein, on the other hand, appeared in pathologic cases about equally as early as in normal cases, while the difference of phenolsulphonephthalein quantity amounted to almost half of that found in normal cases. The average bilateral urea values were considerably reduced as compared with those of normal cases. Averaging of values on the pathologic against those on the normal side for phlorizin and phenolsulphonephthalein gives a ratio of about 1:4, showing also for pathologic cases a fair parallelism of these tests.

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[30] Casper: Handbuch d. Cystoskopie, 1911, p. 328.

[31] Blum and Prigl: Wien. klin. Wchnschr., 21, 22.

[32] Greene: Hospital Bull. of the Dept. of Publ. Char. of New York, January, 1917.

Table 7 was prepared in order to ascertain which of the three tests produced the most uniform comparative figures, establishing it, by these means, as the most accurate and thus the most reliable index of relative kidney function.

In normal as well as in pathologic cases, sugar excretion was at its acme during the first fifteen minute period, was markedly reduced during the second period, and was very low or had entirely disappeared during the third period. Sugar reaction in renal urines had, as a rule, disappeared after forty-five minutes in normal and pathologic cases, and persisted to an hour or longer (seventy-eight minutes in one instance) in only a few observations of the latter type. Since the acme of intravenous phlorizin glycosuria is reached almost immediately after its appearance, and since, for comparative quantitative sugar determination with Lohnstein's saccharimeters, very small urine quantities (less than 1 c.c.) suffice, the time required for the performance of the test is, under favorable conditions, shorter than in any other functional method based on injection of a foreign substance.

For the purpose of comparing the intravenous phlorizin with other well established functional tests, the two most popular methods for comparative estimation of renal function, the phenolsulphonephthalein and urea tests, were chosen. The results of these investigations appear in Tables 5 and 6.

The ratio for comparative values of urea, phlorizin and phenolsulphonephthalein in normal cases was 104:107:187. Thus urea, an end-product of metabolism, naturally excreted by the kidneys, showed almost equal values on both sides (100:104), phlorizin, a foreign substance injected for measuring renal function, running a close second (100:107), while phenolsulphonephthalein, a dye used in the same fashion as phlorizin, showed marked discrepancy of parallelism (100:187).

The most important reason for this phenomenon is, without doubt, the unequal amount of urine which both kidneys under normal conditions may, and as every experienced cystoscopist knows, actually do secrete during the same period of time. Leaking of urine alongside the ureter catheter, temporary plugging of its lumen by mucus or a blood clot, and the often occurring unilateral reflectory auria or polyuria are additional factors in causing quantitative differences in renal urines, collected during certain time periods, as necessary for quantitative phenolsulphonephthalein determination. For the comparative phlorizin test, on the other hand, only determination of the amount of sugar excretion at a certain period of phlorizin glycosuria is needed, since it is well known that both healthy kidneys excrete simultaneously about the same amount of sugar. Tables 8 and 9 serve to illustrate this point.

In normal cases the average ratio for comparative phlorizin and phenolsulphonephthalein values was 100:110, and 100:120, respectively, while the average ratio for quantities of renal urines was 100:150. In pathologic cases the ratio for comparative phlorizin and phenolsulphonephthalein values was 100:300 and 100:170, respectively, this striking incongruity apparently being due to differences in renal urine quantities, the average of which showed a ratio of 100:270.

The wide discrepancy of the ratio of renal urine quantities between normal and pathologic cases is most decidedly due to the more frequent occurrence of reflectory unilateral polyuria in the pathologic cases, which, according to Albarran, is observed only rarely in persons with healthy kidneys.

In cases of advanced unilateral pyonephrosis (stone, tuberculous, etc.), when occasionally only a few drops can be collected from the diseased side, and in unilateral hematuria, the intravenous phlorizin test always furnished us with the desired information as regards comparative renal function, which not infrequently was either missing or unsatisfactory with other methods. In renal urines we have not observed absence of phlorizin glycosuria, which, as previously mentioned, so often occurred in application of the test on bladder urines.

The ideal aim of functional renal diagnosis tends toward determination of the absolute and largest amount of work which each kidney is able to perform. Since this ideal is not practically available at present, we must be content with methods that, like the phlorizin test, are able to demonstrate the comparative working capacity of each kidney. We hope that the improvement of the test by intravenous administration will serve to secure for it its well earned place among recognized functional methods for determination of comparative renal function. Functional kidney diagnosis is still in its infancy, and can be advanced only by critical consideration of the relative value of the various functional methods, and only in this way will survival of the fittest for practical purposes eventually result.

CONCLUSIONS

1. The intravenous phlorizin test, with our simplified technic, is a commodious and expeditious procedure.

2. In normal cases, sugar appears within seven minutes in bladder urine, and within five minutes in renal urines. The acme of sugar excretion sets in within a few minutes, and its disappearance occurs within forty-five minutes after phlorizin injection.

3. As a test for total renal permeability (bladder test) its usefulness is limited. The prompt appearance of sugar generally indicates normal function, and persistently delayed appearance is characteristic of impaired renal function. Quantitative determination of total sugar excretion is useless.

4. As a test for comparative renal function, the intravenous phlorizin test gives more accurate, and thus more reliable, results, while its technic is as simple and less time consuming than that of the phenolsulphonephthalein test.

999 Sutter Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. THOMAS AND BIRDSALL, AND KROTOSZYNER AND STEVENS

DR. ROBERT H. GREENE, New York: Any investigations I have carried on as regards the permeability of the kidney have been from the standpoint of the surgeon, and I have endeavored rather to keep away from the work of the physiologic chemist. I have not felt qualified for it, and I have desired to try to find things which were easy to do, and which would give me some idea as to the condition of my patient in a very short time, and whether or not the work of a physiologic chemist should be brought into any particular case.

Several years ago I tried in the wards at the hospital cryoscopy, methylene blue and phlorizin in connection with ureteral catheterization, and I found that the phlorizin test was the most practical. Later, when phenolsulphonephthalein came to the front, in a comparative series of cases, some of which were medical and some surgical, I tried to find out in a rather rough and ready way which was the most accurate, phenolsulphonephthalein, phlorizin, or the estimation of the nitrogen in the urine compared with the nitrogen in the blood. I also have carried on some little studies on indigocarmin. Indigocarmin, in my experience, is a useful test in connection with ureter catheterization, but it is not as useful in a rough and ready way because it is not elastic enough. The series of cases in which I tried phlorizin, the estimation of the nitrogen in the blood compared with the nitrogen in the urine, and the phenolsulphonephthalein test showed a marked resemblance in the results obtained. The ratio of difference between the three methods was very slight indeed. The most accurate was the estimation of the nitrogen in the blood compared with the nitrogen in the urine; but, of course, this last is work that has to be carried on by a physiologic chemist. The phlorizin test was second and the phenolsulphonephthalein third.

Dr. B. S. Barringer, New York: We all have certain reasons for certain tests. At Bellevue we use three tests, the phlorizin, the percentage urea, and the indigocarmin, for three different reasons. We believe that phlorizin—and that comes first in our estimation—gives a good quantitative estimation, an absolute ratio of what both kidneys are doing. We use the percentage urea test only in comparing the output of the two kidneys, because it gives some sort of a vague index of the relative power of each kidney to concentrate urea. We use the indigocarmin test because it is an easy test to use with the cystoscope, and we can make a diagnosis at times without ureter catheterization, simply by means of the cystoscope in the bladder.

I think when all has been said and done that we cannot depend on the functional tests alone. For instance, if we are going to perform a prostatectomy and we find the phenolsulphonephthalein is low and the blood nitrogen high, we are cautious about operating; but it does not necessarily mean that we do not operate.

Dr. Abraham Hyman, New York: We have employed most of these tests as a routine, and have practically come down to the use of indigocarmin, phenolsulphonephthalein, and the examination of the blood for urea and nitrogen retention. The phenolsulphonephthalein test we do not use in conjunction with ureteral catheterization; a two to three hour bladder specimen is examined so as to obtain an indication of the total output of both kidneys. Indigocarmin combined with ureteral catheterization has been found the most practical, simple and reliable of all the functional tests. Whereas all these tests are of value, and more so if three or four of them are applied, too much stress should not be placed on the results; patients with negative tests should not always be refused operation. During the past few years a few patients with no indigocarmin and phenolsulphonephthalein output, and a number with very slight function, have been successfully operated on for serious renal and prostatic disease. All such operations should be performed under nitrous oxid and oxygen anesthesia. Ether will often turn the balance in the wrong direction.

Dr. William F. Braasch, Rochester, Minn.: It is a difficult matter to place any definite comparative value on the phlorizin, the indigocarmin and the phenolsulphonephthalein tests. As far as phlorizin is concerned, my experience has been with the old method of subcutaneous injection, and I think Rowntree and Geraghty have shown the fallacy of these tests. The method of Dr. Krotoszyner is entirely different. It sounds very promising, and I mean to try it out thoroughly.

There is no doubt that, as a routine procedure, phenolsulphonephthalein is more accurate as an aid to differential diagnosis than indigocarmin. But I believe that indigocarmin, when injected intravenously, has its value. Not infrequently I find it valuable to employ both indigocarmin and phenolsulphonephthalein simultaneously. This would seem impossible because of the difficulty of making colorimeter tests, but the difficulty was obviated by Dr. Anders Peterson, who suggested a method by which the blue color could be removed. He found that by simply adding sodium hydroxid the blue color disappears and the colorimeter test for phenolsulphonephthalein may be continued.

Dr. Anton G. Rytina, Baltimore: I have had very little or no experience with phlorizin, a fair amount of experience with indigocarmin and quite an extensive experience with phenolsulphonephthalein. There is no question whatever that indigocarmin has a place, but for comparative values I feel that it does not compare with phenolsulphonephthalein.

Dr. Herman L. Kretschmer, Chicago: Some years ago when the phenolsulphonephthalein test was first introduced we ran a small series of cases, comparing the phenolsulphonephthalein, the indigocarmin, and the phlorizin tests. At that time we were not estimating the output of indigocarmin; we merely took the time of appearance of the blue dye and the time of appearance of the sugar. Our results were rather uniform as regards time of appearance, all three tests running quite uniform; that is, where there was a delay in time of appearance, the delay was the same for all three tests.

Because of the ease with which one could read the phenolsulphonephthalein figures, we have since then been adhering to the phenolsulphonephthalein in our work.

One of the speakers called attention to the fact that the phenolsulphonephthalein figures occasionally might be very low. I think it was Keyes a few years ago who called attention to the fact that the presence of the ureteral catheters caused a disturbance of the renal function, so that the phenolsulphonephthalein may be low and the function good. In all cases in which the phenolsulphonephthalein figures are very low (I recall one or two instances in which the output from the side which was to remain was only 2 per cent.) I make a second test later, getting the whole bladder urine.

Dr. George W. Stark, Syracuse, N. Y.: For about two years I have been using a combined functional test which I believe gives us a better insight as to the reserve power of the kidney than any other test mentioned. It is also a vascular and tubular test—the introduction of water into the circulation together with the phenolsulphonephthalein test. It is not necessarily new.

This test is based on the fact that the viscosity of the blood is absolutely constant, the urine being the varying factor. The normal figures are based on thirty normal cases. The patient is given no water for two hours previous to the test; then a pint of Saratoga Vichy is given. A catheter is left in the bladder and the urine collected for fifteen minutes. The normal case runs 20 c.c.; specific gravity about 1.024. In about half an hour after this extra water is thrown into the circulation all the reserve power of the kidney is brought into play. Under this forced excretion, normally in the third quarter there is excreted about four times the amount that we had in the first quarter. This corresponds to our experimental work on kidneys (that is, one can remove three fourths of the kidney substance and have an animal live). This hypersecretion continues for about an hour and then gradually decreases. Corresponding to this increased secretion is a lowering of the specific gravity to about 1.004 or 1.005. In other words, this shows the ability of the kidney to dilute and concentrate, and is a vascular test. In nephritis, the first quarter is somewhat less, usually under 20 c.c., while in the third quarter there may be increased elimination under forced water drinking, and very little change in the specific gravity, depending on the amount of kidney substance destroyed. Thus, if we get an elimination of 15 c.c. in the first quarter, and an elimination of 30 c.c. with but a slight change in the specific gravity, we assume that about 50 per cent. of the kidney substance is gone.

This test in conjunction with the phenolsulphonephthalein test, I believe, will give a better insight as to the extent of the injury to both the glomeruli and the tubular system of the kidney, and also as to the reserve power of the kidney.

Dr. John T. Geraghty, Baltimore: In our work with functional tests it has been our purpose, not so much to duplicate the tests that give us the same information, but to try to employ tests that give us information that we will not get from any one test. For that reason we test the excretory power of the kidney, which we do best with phenolsulphonephthalein. Indigocarmin and all these substances practically run parallel. It is simply a question of which can be read the best. They are all excreted by the same mechanism of the kidney. But we want to know, besides the excretory capacity of the kidney, any retention which may be present. It is perfectly possible for a kidney to have very markedly decreased excretion and at the same time to be able to excrete the substances that are necessary; so we make a test for retention. We select for this purpose the urea. Urea, creatinin and total nitrogen run practically proportionate. At present we are using urea because the method is simple. The concentrating power of the kidney is another function. So these three tests are all valuable, each different from the others. If there is a markedly increased excretion there will be, as a rule, retention. The concentrating power of the kidney is just as specific a function as the excretion of phenolsulphonephthalein itself, or of urea. It has been known for many years that the concentrating power of the kidney is one of the first things that suffer. There is probably only one disease in which the concentrating power is interfered with and the kidneys normal, and that is diabetes in syphilis.

Dr. Martin Krotoszyner, San Francisco: I cannot agree with Dr. Thomas' sweeping condemnation of cryoscopy, a method which, while it will never become popular among urologists on account of its difficult technic, is nevertheless one of the best tests for the determination of the functional capacity of the kidneys that we possess. On the basis of my constantly growing experience with that method, I venture the statement that in the comparatively few doubtful cases where functional tests are of paramount value, cryoscopy probably gives the most accurate prognostic information of all the tests at our command.

In closing I would once more ask you to try the intravenous phlorizin test on your own patients, as I think it possesses great advantages for comparative determination over other tests. I have not included the indigocarmin test in the tabulated comparative estimations, since that test is not applicable to quantitative determinations and thus is less flexible and less accurate than other tests. For purposes of comparative functional determinations I consider of the retention tests, the urea test, and of the excretion tests, the intravenous phlorizin test, the most commodious and accurate. Particularly in doubtful cases the simultaneous application of the comparative urea, phenolsulphonephthalein, and phlorizin tests is apt in almost every instance to give adequate data on relative kidney function.

Dr. B. A. Thomas, Philadelphia: First answering Dr. Krotoszyner, I did not mean to infer that cryoscopy was absolutely valueless, but I do say, so far as its application to the total urine and blood is concerned, that this is practically true, which is the matter of importance relative to prostatectomy. Doubtless in the experience of a few it may still be serviceable so far as individual urines are concerned, but not of any more value than the information to be obtained from the employment of phenolsulphonephthalein or indigocarmin. Unfortunately it affords no more information than the more modern tests and adds difficulty in the technic.

I agree thoroughly with what Dr. Geraghty has said, that what we want to know respecting these various tests is which is simplest, most practical and most reliable. This is the avowed object of the paper. Undoubtedly, with some the results are sufficiently uniform that there need be no particular discrimination. Frequently a second test may and should be utilized to supplement and confirm the findings of the first. Certainly any one will admit that two or more tests are of more value than a single one.

I am just as anxious to adopt the best functional kidney test as any man here, but I have not been shown by my own experience that phenolsulphonephthalein is superior to indigocarmin so far as ease of application, interpretation or reliability of results go. The advantage of indigocarmin is the simplicity of its application. In the past our experience has been largely with the employment of indigocarmin intramuscularly, although recently we have been experimenting considerably with the intravenous use of this substance, using one tenth to one fifth of the intramuscular dose. Employed in this way intramuscular pain, the only objection, comparatively, with phenolsulphonephthalein, is overcome. If merely unilateral kidney function be desired, simple cystoscopy and the observance of the onset of the dye from the respective ureters—chromo-ureteroscopy—suffices to provide the desired information. If quantitative output be desired from the respective sides, obviously the ureters must be catheterized, as in the case of any other functional test, but this requirement with indigocarmin is the exception and not the rule. Herein lies the simplicity and practicability of the indigo test. I have seen cases in which one could not introduce into the ureteral orifices other than the tips of No. 5 catheters. Under such circumstances I defy any cystoscopist to apply the phenolsulphonephthalein test unilaterally. Yet it was a simple matter to determine the functions of the respective kidneys by employing indigo. Thus, in not a few instances, it is impossible to use any test that depends on synchronous bilateral ureteral catheterization.

FACIAL PARALYSIS FOLLOWING PASTEUR ANTIRABIC TREATMENT

REPORT OF A CASE OF FACIAL DIPLEGIA WITH ONSET SEVENTY-THREE DAYS AFTER THE BEGINNING OF PROPHYLACTIC INOCULATIONS *

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A report of "treatment paralysis" following antirabic inoculations should in no sense be regarded as casting the slightest doubt on the advisability of carrying out the Pasteur treatment in cases in which it is indicated. Though hundreds of thousands of persons have, by this means, been prevented from developing an almost surely fatal disease, there are records of only 150 cases in which paralyses have followed its use. Of these patients, twenty-five died.[1]

It is desirable, however, that such cases be placed on record in order that a true estimate of their frequency may be made and, if possible, some light thrown on their obscure etiology.

The following history is of interest, first, because of the occurrence of isolated facial diplegia, an unusual form of "treatment paralysis," and, secondly, because of the remarkably long latent period between the beginning of treatment and the development of paralytic phenomena.

REPORT OF CASE

History.—A. U. N. (Med. No. 36828), a white man, aged 37, storekeeper, from Plymouth, N. C., was admitted to the medical service, Nov. 14, 1916, with paralysis of the face and pains in the head. The *family history* was unimportant. There had been no nervous diseases in the family. The general health of the patient had been good, though he was of extremely nervous temperament. At the age of 9 he had what his physician called "hemorrhagic fever," and at 21, 27 and 32, gonorrhea. He denied syphilis. He was a heavy smoker but a very moderate user of alcohol. He had been married eight years. There had been no children.

Aug. 20, 1916, he was scratched on the arm by a supposedly rabid dog, which died a few days later. The wounds were cauterized with phenol. The head of the animal was sent by express to the laboratory of the North Carolina Board of Health, and examination of the brain revealed no Negri bodies. In spite of this assurance, he became extremely apprehensive and, against the advice of his physicians, insisted on taking the Pasteur treatment, which he received at the State laboratory in Raleigh from Aug. 31 to Sept. 19, 1916. On the fourth day of treatment he began to have sensations of "something crawling under his skin," first in one place, then in another. In addition, there were "neuralgic" pains in the lumbar region and in the muscles. These symptoms had persisted. Two weeks before admission he began to feel muscular twitchings, especially in the head, neck and legs. Six days before coming to Baltimore, a severe bitemporal headache appeared, and had not been relieved by sedatives. On rising in the morning, three days before admission to the hospital, he noticed that the left side of his face was paralyzed.

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* *From* the Medical Clinic of the Johns Hopkins Hospital.

[1] A review and critical analysis of this group of cases may be found in Remlinger: Ann. de l'Inst. Pasteur, 1905, **19**, 625. Simon: Centralbl. f. Bakteriol., Orig., 1913, **68**, 72. Fielder, F. S.: The Journal A. M. A., June 3, 1916, p. 1769. Geiger, J. C.: The Journal A. M. A., Feb. 17, 1917, p. 513.

Physical Examination.—The patient was extremely neurotic and much concerned about his condition. He frequently became lacrimose during the recital of his history. The temperature, both on admission and subsequently, was normal. He was large and well nourished. There were several pigmented scars about the left elbow, evidently the remains of his carbolized wounds.

There was complete left facial paralysis, without sensory disturbance on either the face or the tongue. There was marked lacrimation from the left eye.

The pupils reacted normally. There were no eye-muscle palsies. The eyegrounds were normal. The heart and lungs were clear. The blood pressure was 142 mm. of mercury systolic and 92 diastolic. The liver and spleen were not felt. There were *no* fibrillary twitchings; no muscular weakness or atrophy. Neurologic examination, save for the facial paralysis and slightly exaggerated deep reflexes, was negative.

A special nose, throat and ear examination revealed no abnormalities. Both cochlear and vestibular divisions of the eighth nerves were intact.

TABLE 1.—REPORTED CASES OF FACIAL PARALYSIS FOLLOWING ANTIRABIC TREATMENT

Case No.	Author	Demonstration of Rabies in Biting Animal	Age of Patient*	Facial Paralysis			Result	Remarks
				Noted				
				Days After Bite	Days After Beginning of Treatment	Extent		
1	Darkschewitz[1]	No	28	30	7	Bilateral	Recovery after 6 months	Patient alcoholic; left-sided facial paralysis appeared two days after right
2	Pfeilschmidt[2]	Patient not bitten	24	About 60 after supposed infection	24	Bilateral	Recovery in about 3 weeks	Patient syphilitic and very neurotic; did a necropsy on a rabid dog, and though uninjured, took treatment prophylactically; illness began on the eleventh day of treatment, after which no further injections were given; interval of four days between paralysis on the two sides; at time of complete diplegia, taste disturbed over anterior third of tongue
3	Borger[3]	No	?	25	24	Unilateral (right)	Well in 14 days	Illness began with sciatica on sixteenth day of treatment; injections continued; associated with the facial paralysis there was dulling of the sensation of taste
4	Jochmann[4]	Yes	30	22	18	Unilateral (right)	Well in 14 days	Illness began with sciatica on eighteenth day of treatment; still complained of paresthesias of legs on discharge from hospital
5	Hasseltine[5]	Questionable; probably yes	52	22	23	Bilateral	Recovery in 3 weeks	Paralysis developed after exposure to cold wind; patient alcoholic; interval of one day between paralysis on the two sides
6	Fielder[6]	Yes	37	53	18	Bilateral	Recovery after a few weeks	Interval of three days between paralysis on the two sides
7	Fielder[6]	Questionable	Adult	54	23	Unilateral (right)	Recovery after 4 weeks	
8	Fielder[6]	Questionable	Adult	53	31	Unilateral (right)	Recovery after 2 weeks	
9	Fielder[6]	Questionable	Adult	29	16	Unilateral	Complete recovery after 6 months	Illness began with pain and weakness in legs
10	Geiger[7]	Yes	Adult	21	17	Unilateral	Traces 9 months later	
11	Levy[8]	No	37	84	73	Bilateral	No improvement after 3 weeks in hospital; traces 9 months later	Patient very neurotic; interval of eleven days between paralysis on the two sides; at time of complete diplegia, dulling of taste over anterior two-thirds of tongue

* The patients were all men with the exception of Case 10, in which the sex is not noted.

1. Darkschewitz: Neurol. Centralbl., 1898, 17, 98.
2. Pfeilschmidt: Neurol. Centralbl., 1908, 27, 1066.
3. Borger: Geneesk. Tijdschr. f. Nederl. Indië, 1911 (cited by Simon)
4. Jochmann: Deutsch. Ztschr. f. Nervenh., 1913, 47 and 48, 267.
5. Hasseltine: Pub. Health Rep., 1915, 30, 2226.
6. Fielder: The Journal A. M. A., June 3, 1916, p. 1769.
7. Geiger: The Journal A. M. A., Feb. 17, 1917, p. 513.
8. Levy: Present report.

The urine contained no albumin, sugar or casts. Blood examination revealed: red blood cells, 4,346,000; white blood cells, 5,800; hemoglobin (Sahli), 82 per cent. The differential count was normal. The Wassermann reaction on the blood serum was negative.

November 20, the condition was unchanged. There was no further paralysis. Psychic symptoms were abating.

Lumbar puncture was performed. A clear fluid was obtained, containing eight cells and *no* excess of globulin. The Wassermann and colloidal gold reactions on the fluid were negative.

November 22, electrical examination of the facial muscles gave the following findings: Feeble response was obtained through the nerve on the left when stimulated with the faradic current. Direct stimulation of the muscles with the faradic current caused some contraction, but excitability was markedly decreased. When stimulated directly with the galvanic current, the muscles responded more slowly on the left side than on the right, and there was decreased excitability. Cathodal closing contraction was greater than anodal closing contraction.

November 27, the patient complained of stiffness of the right corner of the mouth and of an increase in the "feeling of something crawling over the body." There was slight weakness of the lower right side of the face.

November 28, the entire right side of the face was paralyzed, except for the right frontalis muscle, which contracted slightly. There was great difficulty in keeping food within the oral cavity. The expression was mask-like.

November 30, the patient was very nervous. Control of the right half of the face was now completely lost. He was having local electric treatment every other day.

December 4, the patient complained of numbness of both legs. There was no objective sensory disturbance over the body. There was marked dulling of taste sensation over the anterior two thirds of the tongue on both sides. He frequently mistook bitter for sweet, salt for sour, etc., and was much concerned about his condition. He left the hospital at his own request. He was advised to continue electrical treatment to the face at home.

A note from the patient's physician, June 25, 1917, stated that "Mr. N. is not taking any treatment now. He is very little better, judging from the appearaance of his face."

The following extracts from a letter received, Nov. 20, 1916, from Dr. C. A. Shore, director of the Laboratory of Hygiene of the North Carolina State Board of Health, furnish further interesting data:

"Mr. N. received antirabic treatment in this laboratory from August 31 to September 19, inclusive. I do not think that Mr. N. needed this treatment and I strongly advised against it. In the first place, the suspected dog did not bite him, but merely scratched his arm, on August 20. The dog died, according to Mr. N.'s statement, on August 24. The head was expressed to us; the brain was in good condition when received and the microscopic examination failed to show any Negri bodies.

"We have treated 1,620 patients in this laboratory, and from this number, excluding that of Mr. N., there has been only one case of paralysis. This developed on the fourteenth day of treatment. The patient had a complete paralysis of the lower limbs and partial paralysis of the muscles of the arms and trunk. I have never been sure whether it was a case of infantile paralysis or a paralysis resulting from the antirabic treatment. The patient was 15 years old at the time and made a complete recovery.

"The schedule of treatment which we use in this laboratory at present is that recommended by the Hygienic Laboratory of the U. S. Public Health Service."

COMMENT

A majority of cases of "treatment paralysis" have developed while the patients were receiving the injections; about one quarter, according to Simon, within seven days thereafter. Fielder cites an instance of facial paralysis with onset thirty-one days after beginning treatment, and Geiger a case of neuritis, with spasmodic contraction of the neck muscles, occurring forty-five days after the first inoculation.

In spite of the fact that in the case here reported seventy-three days elapsed between the beginning of treatment and the onset of paralysis, there can be no reasonable doubt as to the direct relationship between the antirabic therapy and the facial diplegia. Symptoms began after the fourth injection and were similar to those described in other instances of "treatment paralysis." Furthermore, the gradual development of paralysis of the right side of the face while the patient was under careful supervision in the hospital ward makes it highly unlikely that this was an example of simple Bell's palsy.

In the literature are to be found records of ten other cases of isolated facial paralysis following antirabic treatment. These are collected in the accompanying table.

An analysis of the table brings out the following points:

1. In at least three instances, the biting animal was proved nonrabic.
2. All cases in which complete data are available occurred in adult males.
3. The earliest appearance of the facial paralysis was on the seventh day, the latest, exclusive of the present case, was on the thirty-first day after beginning treatment.
4. In six cases the facial paralysis was unilateral, in five bilateral.
5. In the bilateral cases, an interval of from one to eleven days elapsed between the development of paralysis on the two sides. In no instance were both sides of the face paralyzed at onset.
6. Dulling of taste over the anterior portion of the tongue accompanied the facial paralysis in three instances.
7. Nine of the eleven patients recovered. In two cases there were traces of paralysis nine months later.
8. Of 150 reported cases of treatment paralysis, eleven, or 7.3 per cent., have been of the isolated facial variety.

The etiology of these paralyses is still in doubt. The various theories as to their causation have recently been adequately discussed by Fielder, who sums them up as follows: "There is no doubt that in most of the cases, at least, the symptoms are caused, not by street virus infection, modified by the treatment, but by the treatment itself either through the medium of fixed virus infection or through the action of a toxin, or both. In any event there must be a special idiosyncrasy on the part of the patient. Otherwise the cases would be enormously more frequent than they are." Alcoholic, syphilitic and neurotic individuals are said to be particularly susceptible.

Obviously no special form of therapy based on etiologic considerations can be carried out.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

BORCHERDT'S MALT SUGAR.—A mixture containing approximately maltose 87.40 per cent., dextrin 4.35 per cent., protein 4.40 per cent., ash 1.90 per cent., moisture 1.95 per cent.

Actions and Uses.—Borcherdt's malt sugar may be used where maltose is indicated in the feeding of infants, particularly in the treatment of constipation. The nutritive value of 500 Gm. of Borcherdt's malt sugar corresponds to approximately 1,985 calories.

Dosage.—It may be used in all milk mixtures in the same proportions as lactose (sugar of milk), that is, one ounce of Borcherdt's malt sugar (two tablespoonfuls) to a 20 ounce mixture.

Manufactured by The Borcherdt Malt Extract Co., Chicago. No U. S. patent. U. S. trademark No. 64467.

Borcherdt's malt sugar is prepared by the action of malt diastase on starch.

It is a yellowish-brown powder having a malt odor and a sweet taste. It is somewhat hygroscopic and very soluble in water.

If a few drops of iodine test solution be added to an aqueous solution of Borcherdt's malt sugar, a reddish-violet but not a blue color is produced.

The maltose content of Borcherdt's malt sugar is determined according to the method described in U. S. Dept. of Agric., Bureau of Chem., Bulletin No. 107, page 46.

The protein content of Borcherdt's malt sugar is calculated from the nitrogen content ($N \times 6.25$) as determined by the method described in U. S. Dept. of Agric., Bureau of Chem., Bulletin No. 107, page 5.

TYRAMINE-ROCHE — Para-Hydroxy-Phenyl-Ethyl-Amine Hydrochloride. — $OH.C_6H_4.CH_2.CH_2.NH_2.HCl$. — The hydrochloride of the base para-hydroxy-phenyl-ethyl-amine $OH.C_6H_4.CH_2.CH_2.NH_2$ obtained synthetically.

Action, Uses and Dosage.—See New and Nonofficial Remedies, 1917, p. 105, under Tyramine.

Manufactured by F. Hoffmann-La Roche & Co., Basel, Switzerland (The Hoffmann-La Roche Chemical Works, New York). No U. S. patent or trademark.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

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SATURDAY, DECEMBER 1, 1917

A PROBLEM CONCERNING EDIBLE FATS

"The great changes which the theories of the science of nutrition have undergone in the course of the past few years," we are reminded by Halliburton and Drummond[1] of London, "are now being rewarded by valuable practical applications of laboratory results to the great problems of animal nutrition, and the national welfare. Such a problem is that which deals with the determination of the relative value as foodstuffs of dairy butter and its numerous substitutes." These authors have accordingly undertaken to expand our knowledge in this field by a study of the nutritive value of margarins and butter substitutes with reference to their content of the fat-soluble accessory growth substance.

It deserves to be emphasized that the association of food hormones or vitamins with certain naturally occurring fats, whereby somehow they promote growth in experimental animals, was originally described by American investigators: McCollum and his associates at the University of Wisconsin, and T. B. Osborne and Lafayette Mendel in New Haven. The British investigators in reviewing the progress made in this new field of investigation, confined so largely to this country, point out that although our knowledge of the substance itself is as yet scanty, we are in possession of certain information as to its occurrence. It is present in butter,[2] butter fat,[3] butter oil,[4] egg yolk,[5] cod liver oil,[6] the lower melting point fractions of beef fat,[4] and kidney and heart fat.[7] On the other hand, it is apparently absent from the majority of oils of vegetable origin, since olive oil,[8] almond oil,[6] corn oil, sunflower seed oil, bleached cottonseed oil and linseed oil[9] were unable to replace such a fat as butter in the experimental rations used. The only animal fat as yet found to be entirely deficient in the substance is lard.[10]

The high prices that the usual household fats have demanded in recent times have brought into prominence a large number of so-called butter substitutes. The recent increase in their consumption may truly be called enormous. The higher priced margarins are usually derived from animal fats. Oleo-oil forms their basis. Vegetable oleomargarins are prepared by the utilization of some inexpensive vegetable oil, such as coconut oil, peanut oil, cottonseed oil, sesame oil or maize oil, as a basis. Liquid oils are also being converted into edible fats by the process of hydrogenation. The so-called nut butters or pastes are also replacing the more expensive butter.

The conclusions of the research by Halliburton and Drummond have been thus formulated: The fat-soluble accessory growth substance is present in beef fat and "oleo-oil," and is present in margarins prepared on such a basis. Such margarins are nutritively the equivalent of butter. Coconut oil, cottonseed oil, arachis oil and hydrogenated vegetable oils contain little or none of this accessory substance; hence margarins prepared with a basis of these fats have not an equal nutritive value to that of butter. Nut butters prepared from crushed nuts and vegetable fats are similarly not equal to butter. Lard substitutes prepared from vegetable oils are equal to lard in their nutritive value, both alike being destitute of the fat-soluble accessory substance.

Despite the importance of these researches and the unquestioned information which they furnish in harmony with many data already established by American investigators, we believe that in fairness to the many useful butter substitutes and margarins now available, a word of caution should be uttered. No one has questioned the edibility and the high degree of digestibility of essentially all of these products that have been examined as to their alimentary utilization. In this respect, like the familiar fats, they leave little to be desired. Oleomargarin has long been immune from attack on the ground of poor digestibility by its numerous frequently unfair detractors. On the other hand, the fat-soluble food hormones or vitamins are reported to be present in the leaves of green vegetables as well as in the milk, butter and eggs that are commonly found in the usual dietary. A liberal varied ration is thus likely to avert danger of lack of vitamins. We must not go to the extreme of forgetting the calorific value of fats quite aside from their content of food accessary substances.

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[1] Halliburton, W. D., and Drummond, J. C.: The Nutritive Value of Margarines and Butter Substitutes with Reference to Their Content of the Fat-Soluble Accessory Growth Substance, Jour. Physiol., 1917, **51**, 235.

[2] McCollum, E. V., and Davis, M.: Jour. Biol. Chem., 1913, **15**, 167.

[3] McCollum, E. V., and Davis, M.: Jour. Biol. Chem., 1913, **15**, 167. Osborne, T. B., and Mendel, L. B.: Jour. Biol. Chem., 1913, **15**, 311.

[4] Osborne, T. B., and Mendel, L. B.: Jour. Biol. Chem., 1915, **20**, 379.

[5] Osborne, T. B., and Mendel, L. B.: Jour. Biol. Chem., 1913, **15**, 311; ibid., 1913, **16**, 423.

[6] Osborne, T. B., and Mendel, L. B.: Jour. Biol. Chem., 1914, **17**, 401.

[7] McCollum, E. V., and Davis, M.: Jour. Biol. Chem., 1915, **21**, 179.

[8] McCollum, E. V., and Davis, M.: Jour. Biol. Chem., 1913, **15**, 167. McCollum, E. V., Simmonds, N., and Pitz, W.: Am. Jour. Physiol., 1916, **41**, 361.

[9] McCollum, E. V.; Simmonds, N., and Pitz, W.: Am. Jour. Physiol., 1916, **41**, 361.

[10] McCollum, E. V., and Davis, M.: Jour. Biol. Chem., 1913, **15**, 167. Osborne, T. B., and Mendel, L. B.: Jour. Biol. Chem., 1913, **16**, 423.

The real danger appears in connection with the enforced rations of the poorer classes. For them, with their limited opportunities of purchase, the main conclusion of Halliburton and Drummond, that among the current products the butter substitutes that can best replace butter presumably are the margarins made of so-called "oleo-oil" from beef fat, seems more pertinent. As the London investigators remark, in ordinary times the consumption of beef dripping, which is considerable among the poor, would to a large extent supply the lacking properties of a vegetable-oil margarin. But at the present time beef itself is expensive, and the opportunities of obtaining dripping are therefore minimized. At the same time the three important foods for children (milk, butter and eggs) have risen in cost, so as to be almost prohibitive to those with slender incomes. The vegetable oil margarins still remain comparatively cheap, and the danger is that unless measures are taken to insure a proper milk supply for infants at a reasonable charge, these infants may run the risk of being fed, so far as fat is concerned, entirely on an inferior brand of margarin, destitute of the growth-promoting accessory substance. Therefore, Halliburton and Drummond conclude, it would be truer economy even for the poor to purchase smaller quantities of an oleo-oil margarin if they cannot afford the luxury of real butter.

ON KEEPING THE FAITH

In the *Deutsche medizinische Wochenschrift* for May 18, 1916, appeared a letter signed by Dr. J. Schwalbe, the editor, which has become famous. While at that time the *Wochenschrift* was coming to this office more or less regularly, that particular issue was not received; and the efforts made to secure a copy were fruitless. A copy of the letter recently came into our hands. This letter is not only one of the important historical documents of the war, but it gives a revealing flash of the spirit that must rule in Germany before that nation can be readmitted to fellowship in the world-state. The facts of the case are clear and simple. The official reason given by the German government in 1914 for declaring war on France was that French aviators had dropped bombs in the vicinity of Nürnberg before any other outbreak of hostilities. This was officially denied by the French government. And there the matter practically rested for the outside world until the publication of Schwalbe's letter in May, 1916. From this letter we quote:

> In my article "French-National Medicine" (No. 11, p. 327, line 1) I mentioned among other things—in political justification and in reply to the accusations of our enemies—that a French aviator had dropped bombs on Nürnberg prior to the declaration of war. I am apprised in a statement which Privy Councilor Riedel of Jena secured from the magistrate of Nürnberg that my memory had failed me to some extent in this matter: Not at all; I read in the newspapers of August 2, 1914, the news item that on that day, according to the statement of the officers of the Nürnberg railroad—forwarded by the semiofficial Bavarian correspondent, Hoffman—to the effect that aviators had been seen on the Nürnberg-Kissingen line of the railway and on the Nürnberg-Ansbach line, and that they had dropped bombs on the right of way. However, further correspondence between Privy Councilor Riedel and the magistrate of Nürnberg has demonstrated that this assertion, which hitherto has never been corrected, and which has been generally accepted by us as evidence of infraction of the rights of nations on the part of French aviators, is in fact erroneous. The Nürnberg magistrate, under date of April 3, 1916, writes as follows: "The army authorities here have no knowledge of any bombs having been dropped by enemy aviators on the Nürnberg-Kissingen and Nürnberg-Ansbach lines either before or since the declaration of war. All statements and news items to the contrary have been proved to be false."
>
> I consider it to be my self-evident duty to make this correction now. It frees the French of the blame which has been placed on them in consequence of this false piece of news.

In the rest of the letter Dr. Schwalbe discusses the "war state of mind," particularly the credence given by the other side to unverified rumors and accusations against the enemy. Dr. Schwalbe frankly avows in this letter that there is no evidence whatever that the Nürnberg bomb-dropping ever occurred. It is hardly conceivable, therefore, that this reason for declaring war could have been put forward by the German government in good faith. No one can look on it as other than a deliberate attempt at deception. Indulgence in fantasies is not a weakness of Prussian officials. The alleged Nürnberg bomb-dropping will take its place in human history along with the forged Ems telegram as a monstrous perversion of human ethics and fair dealing.

Germany can but reap the consequences of repeated official falsification of this sort. We in this country have not forgotten the perjured testimony, perhaps suborned, to which the German government appealed to show the presence of guns on the *Lusitania;* we have not forgotten the childish attempt to controvert the accusations made relative to the torpedoing of the *Sussex* by reproducing a "sketch" made by a submarine commander. The insincere talk of peace in December, 1916, which was later admitted by the German chancellor to have been merely a blind in order to give time for the building of more submarines, is still fresh in our minds. The discrepancy between the profession of good will and friendship by official German representatives in this country and the mesh of intrigue, bribery, arson and worse in which they were really busying themselves can never be forgotten. Where is now the *deutsche Treue?* Who can trust the word of the German government?

This untrustworthiness of official Germany is one of the outstanding facts of the present situation and is one of the principal obstacles to peace. The world in arms against Germany has been taught by Germany herself to suspect every offer of negotiation and to see a dagger concealed in every olive branch. What new trick is afoot? is the question that springs unbidden in the minds of millions whenever a responsible German official hints of peace, of compromise, of disarmament. The situation is a terrible one for humanity; it is much more terrible for the German nation. It demonstrates what some one has called the moral bankruptcy of official Germany. What can be worse for a man or for a nation than to be disbelieved, distrusted and suspected in every word and action, of bad faith? It is for this reason that a large part of the civilized world is determined to fight until a decision is reached. No other course is possible. The stake is civilization itself, the honorable intercourse of intelligent human beings.

We know well that not all Germans participate in this worship of treachery and double dealing. The Schwalbe letter is one piece of evidence that no fear of consequences can deter some bold voices from speaking out for truth and fair play. It is in some degree a credit to the fundamental integrity of the medical profession that one of the most candid and momentous confessions of error should come from one of its members. Dr. Schwalbe has kept faith with us, and we send him all honor. Every one must wish that more protests could be raised in Germany against German official trickery and official falsehood. Truth is of the essence of our scientific work, and many of us have felt keen sorrow that larger numbers of our German friends and colleagues were not keeping the scientific faith. It is the only way. Otherwise German science and German honor will become a byword and a hissing. Already men talk of "German faith" and a "German peace."

SEX HORMONES IN FETAL LIFE

From time to time reference is made in a popular way to a superstition that if twins are of opposite sexes, the female is sterile. How unfounded this belief is in the case of human twins appears from an old investigation of Simpson in Edinburgh. He investigated the family history of 123 married women born twin to males, of whom 112 had families and eleven had none. The proportion of childless marriages was not greater than in the general population. It may be that the mistaken notion is derived by analogy from what is known to be the case among cattle. There the facts are different. In about nine tenths of different-sexed twins the female is sterile. Such females among cattle are commonly known as freemartins. The phenomenon is not known to occur among other species.

Lillie[1] of the University of Chicago has furnished a highly probable explanation of this peculiarity of sterility of the female of different sexed twins. It has been assumed by some that the freemartin is merely a modified male. The evidence now furnished by Lillie indicates with more than probability that the *freemartin is by heredity a true female.* He has concluded that it is modified by the sex hormones of the *male twin, which circulate in both individuals during fetal life owing to secondary fusion of the chorions* and anastomosis of the fetal circulation of the two individuals.

The question naturally arises as to why there is not a reciprocal relation between two opposite sexed twins. If their blood intermixes why do not the sex hormones of the female exert an effect to alter the male? The answer is presumably to be found in the earlier differentiation of the sex glands of the male in the development of the individuals so that they can exert an influence through the liberation of hormones before the ovary begins to develop. The previous differentiation of the testis thus leads to suppression of specific ovarian tissue from the beginning, in the female; hence the limitation of the freemartin condition to that sex.

The sterility of the female of two-sexed twins—a phenomenon due to the circulation of the blood of the male twin in the female, owing to peculiar fetal vascular connections in twin pregnancies—is limited to cattle because these anatomic conditions are rarely if ever duplicated in other species. Fusions of adjacent chorions are occasionally found in multiparous animals; but there are no vascular connections. In some mammals the conditions of placentation are such as to prohibit chorionic fusion. The problem arises as to how it happens that the sex hormones of the mother, which numerous facts indicate to be responsible for secondary sexual characters,[2] do not affect the reproductive system of the unborn sons. Lillie concludes that the embryo is in some way protected from these hormones circulating in the maternal blood. Either, he says, there is a cessation of production of sex hormones during fetal life, or they are neutralized in some way, or the placenta is impervious to them. The last supposition seems most probable to Lillie.

There is a broad biologic import to these studies. In the lower forms of life, reversibility of sex has been experimentally demonstrated. In the freemartin, a hereditary female, the internal organs of reproduction are usually predominantly male in character, and the external organs usually of the female type. Evidently the male hormones that reach the female fetus do not cause the development of any structure that is not represented embryologically in the normal female; the hormones act in this case merely by inhibition or stimulation of normal embryonic rudiments. To quote Professor Lillie:

> For their proper evaluation the results concerning the freemartin should be associated with other studies indicating that

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[1] Lillie, F. R.: The Free-Martin: A Study of the Action of Sex Hormones in the Foetal Life of Cattle, Jour. Exper. Zool., 1917, 23, 371.

[2] What Determines the Development of the Secondary Sexual Characters? editorial, THE JOURNAL A. M. A., Feb. 17, 1912, p. 484; The Modification of Secondary Sexual Characters, Feb. 21, 1914, p. 618; The Corpus Luteum and Secondary Sex Characters, July 24, 1915, p. 337.

zygotic determination of sex is not irreversible predestination, but a quantitative overbalance in the direction of one sex or the other. Sex determination is controllable within variable limits in certain groups, to which mammals must be added as a result of the present study. To determine the means, limits and subsequent results of such control is now one of the most important tasks of biology.

CERTIFIED MILK AND THE BACILLUS OF CONTAGIOUS ABORTION

Certified milk is the term applied to "milk produced under sanitary conditions of exceptional excellence, by the most painstaking methods and under constant supervision and inspection of a medical milk commission." The certified milk of the present day is essentially the outcome of the efforts of the medical profession, and the establishment of such a grade of food product from the dairy has unquestionably had a most wholesome influence for the betterment of the general milk supply and the raising of its sanitary quality. As the herds of cattle involved are systematically subjected to a tuberculin test, and the certified milk that the nontuberculous cows produce is expected to contain less than 10,000 bacteria per cubic centimeter when delivered, such milk has come to have the reputation of being safe even when used in the raw state.

In an investigation lately conducted at the University of California Medical School by Fleischner and Meyer,[1] attention has been directed to the adequacy of the safeguards against the dissemination of bovine tuberculosis as they have been introduced into the highly organized scheme of dairy hygiene fostered by the medical milk commissions. The presence of tubercle bacilli in unheated market milk of the usual quality has often been demonstrated. In the certified milk produced in the San Francisco Bay regions, tubercle bacilli are not present in sufficient number to infect guinea-pigs, the usual test subject, with tuberculosis. If this observation proves to be of more general validity, Fleischner and Meyer maintain that there is no necessity for pasteurizing certified milk on account of any danger that it may possess as a disseminator of bovine tuberculosis to infants.

Quite unexpectedly, however, the California investigators found that *Bacillus abortus*, which is held responsible for infectious abortion observed among cattle, is, for practical purposes, always present in the certified milk produced in the San Francisco Bay regions. Fleischner and Meyer believe it to be not unlikely that in many previous milk tests for tubercle bacilli, the anatomic lesions of bovine abortion disease in the guinea-pig were mistaken for tuberculosis. Furthermore, they say, if *B. abortus* is present in certified milk to the extent evident from these experiments, it is difficult to consider it pathogenic for infants, without, so far as is known, ever having produced recognizable lesions on postmortem examination.

Even if the consensus of the scanty evidence now available is against any probable pathogenicity of *B. abortus* of cattle for man, it must be admitted that there are too few studies on the possible significance of this organism from the standpoint of human health. The California investigations are likely to start renewed consideration of the status of unpasteurized certified milk. There are chapters relative to milk hygiene that seem never to be closed. Revision is, however, the sign of progress toward the best that present day knowledge affords.

Current Comment

THE DEVELOPMENT OF THE MAMMARY GLAND

That the growth of the mammary gland during pregnancy is determined by some form of chemical stimulation rather than through nervous influence seems to be established beyond question. Precisely where the effective agent or the specific hormone that induces growth of the tissue is produced has been somewhat debated. It is essential to distinguish clearly between the developmental changes in the mammary gland, on the one hand, and the factors leading to secretion, on the other. Thus it has been suggested that the stimulus which results in the production of milk is in reality inhibitory in character. By preventing secretion it is assumed to permit the continued growth of the glandular tissue. Lane-Claypon and Starling,[1] whose pioneer investigation in this field is well known, thought that the growth of the mammary gland in their experimental animals was due to the presence of the fetus. The evidence now seems to be conclusive that the corpus luteum—the tissue produced in the ovary as the result of the discharge of an ovum—exerts the influence responsible for the growth changes in the mammary gland during the first part of pregnancy.[2] But since the gland continues to develop throughout the period of pregnancy, while it has been believed that the corpus luteum tends to undergo regressive changes before parturition, the explanation for the later developmental progress has been in question. Ancel and Bouin attributed it to a hormone produced by a special tissue, the myometrial gland, reputed to make its appearance in the wall of the uterus at the site of implantation of the placenta and last until the end of pregnancy. The possibility that the placenta might be a potent source of the growth stimulus has also been considered. The latest experiments of Captain Hammond at the School of Agriculture in Cambridge, England,[3] indicate that in rabbits, at least, the corpus luteum, contrary to the generally accepted opinion, is active during the second half of pregnancy, and that it controls the entire development of the mammary gland. There is a definite correlation between the development of the corpus luteum and the increase in weight of the mammary gland. Indirectly the fetus plays some part, since it appears to be responsible for the continued performance of the corpus luteum. The reputed significance of the myometrial glands is lost in view of their inconstant occurrence. Experiments in which the fetuses were removed without destruction of the maternal placenta have shown among others that the latter is not the source of the stimulus which causes the glandular phase of the mammary gland. There is no evidence that the secretory stage is due to anything different from that which causes the growth changes. Apparently, Hammond says, the secretion of milk results whenever the influence causing the glandular growth is removed or lessened in amount. In this case, then, milk secretion takes place in correlation with the involution of the corpus luteum.

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[1] Fleischner, E. C., and Meyer, K. F.: Observations on the Presence of the Bacillus Abortus Bovinus in Certified Milk, Am. Jour. Dis. Child., September, 1917, p. 157.

[1] Lane-Claypon, Janet, and Starling, E. H.: Proc. Roy. Soc., B, 1906, **87**.

[2] Ancel, P., and Bouin, P., Compt. rend. Soc. de biol., 1909, **66**. Hammond, J., and Marshall, F. H. A.: The Functional Correlation Between the Ovaries, Uterus and Mammary Glands in the Rabbit, with Observations on the Estrous Cycle, Proc. Roy. Soc., B, 1914, **87**, 442.

TAXES—JUST AND UNJUST

In war it is essential that every citizen give freely of his time and strength to the cause. It is also his duty to pay the taxes that war renders necessary, cheerfully and promptly, without any thought of evasion. Nevertheless, if by error in judgment, or error not intended, there is legislation that results in inequality in taxation, so that one individual is burdened while another in practically the same condition escapes, it is proper to urge on our legislators the need of correction. As some of our readers know, Section 209 of the present war tax law directs that in addition to the income taxes and surtaxes, there shall be an additional tax of 8 per cent. in the case of professional men after an exemption of $6,000. The result is a manifest injustice in that a physician who has no other income but that produced by his own earnest efforts pays this tax of 8 per cent., in addition to the normal income and surtax, whereas the youth who has inherited from his father an amount of money that enables him to live in ease on the interest derived therefrom is not so taxed. Section 209 is a penalty on brains and hard work, and favors inherited wealth. Senators and representatives have acknowledged that it was slipped in without its effects being appreciated or without their knowledge, as a last minute addition after the final conference, and that at the coming session in December an effort will be made to correct or amend Section 209. When Congress convenes, an endeavor will be made to eliminate this "joker" from the law. Physicians whose gross annual income exceeds $6,000 are, of course, interested in this proposition, and should bring influence to bear on their congressmen to get a bad law rescinded.

MEDICAL PIONEERS OF KENTUCKY

The issue of the *Kentucky Medical Journal* for November 1 is an historical number, edited by Dr. J. N. McCormack. "Recognizing that history, after all, is little more than a succession and tactful combination of selected biographies," the editor has undertaken the "task of collecting and preserving in a somewhat permanent form such still available data . . . as might . . . be useful as the foundation of such a history of that day as would be worthy of the actors whose momentous deeds it recorded." The volume is largely a compilation of biographic sketches recording the professional work of the several subjects and is grouped under the following heads: the McDowell Group, the Transylvania University Group, the University of Louisville Group, and the General Kentucky Group. It is profusely illustrated with portraits of Kentucky physicians, many of whom gained recognition as leaders in the American medical profession. These memoirs of physicians who accomplished so much for scientific medicine in the Middle West under inadequate facilities must be an inspiration for the present and future research work in both the art and the science of medicine. This particular issue of the *Kentucky Medical Journal* contains over one hundred and seventy pages and is deserving of the highest praise not alone from an editorial point of view, but also from its general mechanical and typographic arrangement and make-up. Kentucky has set an example for other state associations to follow.

Effect of High Prices on the Consumption of Milk.—To determine to what extent the high price of milk had affected its consumption among the children of the poor, an investigation was made in October under the joint auspices of the Department of Health, the New York Association for Improving the Condition of the Poor and a Committee on Milk appointed by the mayor, among 2,200 New York families each containing from two to six children, or 12,439 individuals in all. Of these 4,467 were adults and 5,438 were children under 6 years. The total amount of milk purchased by these families was 3,193 quarts as against 4,797 quarts a year ago. This decrease was partially offset by the daily purchase of 141 tins of condensed milk. The amount of milk which physiologists and pediatrists have estimated as the normal amount required by all of the persons considered is 8,194 quarts. It was found in the investigation that 121 families were getting more milk than a year ago, 599 families were getting the same amount, 1,480 families were getting less, and 420 families were now getting more condensed milk. Of the families getting less milk, over half (969) were getting from 25 to 50 per cent. less. Two thousand one hundred and forty-eight children under 6 years of age were drinking tea and coffee. The foregoing is set forth in the *Weekly Bulletin* of the Department of Health, Nov. 3, 1917. The commission appointed by Mayor Mitchel to investigate and report on the possibility of preventing a further increase in the price, or of lowering the present high price, which was 14 cents as against 9 cents a year ago, in their representations to the dairymen's league made the following statements (same publication): 1. The present high cost of milk has reduced the total supply of the city by approximately 25 per cent. 2. In many sections of the city it has reduced the quantity of milk used as much as 50 per cent. 3. In some sections of the city the quantity used by infants and children has been reduced below the minimum which the best medical science considers necessary for the maintenance of health. 4. There has been a recent increase in infant mortality which the health department believes to be due to a decreased use of high grade milk.

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[3] Hammond, J.: On the Causes Responsible for the Developmental Progress of the Mammary Glands in the Rabbit During the Latter Part of Pregnancy, Proc. Roy. Soc., B, *1917*, 89, 534.

Medical Mobilization and the War

MEDICAL MISSIONS FOR ROUMANIA

A medical mission under command of Col. Walter D. McCaw, Manila, P. I., M. C., U. S. Army, consisting of medical officers and nurses, has been organized by the Surgeon-General for service in Roumanian hospitals. Colonel McCaw will report to the American minister at Jassy.

According to the *British Medical Journal,* a Japanese medical corps of 100 men has gone to Roumania to help control the epidemic of typhus in that country, with headquarters at Jassy.

AMERICAN SPAS AND THE WAR

In England and France the military authorities are making use of the hydrologic resources of the spas of those countries in the treatment of convalescent soldiers. Dr. Guy Hinsdale has called attention to the extensive use of these spas by the English and the French, and suggests that an inventory of American hydrologic resources should be taken.

THE CARREL-DAKIN TREATMENT OF WOUNDS

Report of Special Committee Appointed by the Director-General of the British Army Medical Services

A committee appointed by the director-general of the British Army Medical Services for the purpose of investigating and reporting on the Carrel-Dakin treatment of wounds has made its report (*British Medical Journal,* 1917, **2,** 597). The hospitals visited were Carrel's, which at the time of the visit was under the surgical care of Guillot; the clinics of Tuffier and Chutro in Paris; the American Ambulance in Paris, and Mrs. Depew's Hospital at Annel. In Carrel's, Tuffier's and Chutro's clinics, only Dakin's fluid is used. In the Annel Hospital, three fluids are used with Carrel's tubes —Dakin's fluid, eusol[1] and ether. The committee was assured that good results were obtained from each of them. The committee points out that it is evident that in estimating the value of the Carrel-Dakin treatment, care must be taken to appraise quite separately the method of applying the antiseptic and the antiseptic employed. While convinced that the use of Carrel's tubes, as the committee saw them employed, is a very valuable means of applying an antiseptic fluid to a wound, the committee is not satisfied that Dakin's fluid is markedly superior to eusol, and was prepared to find that other antiseptics can be used with advantage by the Carrel method.

The results of the Carrel-Dakin treatment, as seen in a large series of unselected cases, were remarkably good. The most striking evidence of the value of the treatment seen by the committee was a printed notice put up in a prominent place in Tuffier's wards, said to be the expression of his own opinion after a considerable experience of the Carrel-Dakin treatment. The notice is as follows:

"Tout blessé qui suppure a le droit d'en demander la raison a son chirurgien" (every patient whose wounds suppurate has the right to demand an explanation of his surgeon).

The committee is of the opinion that the Carrel-Dakin method of treatment, if carried out thoroughly, is full of promise, and believes that it will (1) diminish the dangers incidental to sepsis, including secondary hemorrhage; (2) hasten the patient's convalescence; (3) lessen the liability to stiff joints and cicatricial deformities; (4) enable the patients to leave the hospital with better general health than they otherwise might, and that (5) when secondary operations become necessary, these operations are more likely to be free from septic complications than when some other system of primary treatment has been adopted.

NEWS OF BASE HOSPITALS IN FRANCE

Notes of Interest Gathered During a Tour of Several British and French Hospitals

[In a personal note accompanying this communication Captain Hirschman says: "I am sending herewith a report of observations I made while on special detail in one of the busy districts of France. It was considered of sufficient interest to the Chief Surgeon, Lines of Communication, American Expeditionary Forces, France, to have it sent to, and read by, the Medical Staff of all the base hospitals. . . . We of the Harper Hospital Unit, of Detroit (Base Hospital No. 17), are fortunately situated in an old city full of historical interest. The main building of our hospital is an old seminary building, which adapts itself very readily to hospital purposes. We are enlarging our hospital to 1,200 bed capacity."]

In all the hospitals the Carrel method of using hypochlorites is universally employed in the treatment of all infected wounds, and also as a prophylactic treatment for all wounds of which the slightest doubt is entertained. Punctured wounds are converted into incised wounds, all badly bruised tissue is excised, and Carrel-Dakin solution is started at once. Plenty of rubber tubing must be used, and the skin surfaces around the wounds well protected by gauze saturated with petrolatum. It must be remembered that the Carrel-Dakin tubes are used to bring the solution in contact with every portion of the wound, and are not used in any sense as drainage tubes. The solution is used at room temperature and not by the so-called drop method.

Bacterial counts are made daily or every other day until the number of micro-organisms is reduced to one half to a field. When this time arrives, physiologic sodium chlorid solution, or artificial serum, as the French call it, may be substituted for the Carrel-Dakin solution. In some cases the wound is sutured at this time with satisfactory results. Some British hospitals use an iodoform-bismuth petrolatum paste as a dressing following the Carrel-Dakin treatment.

HOSPITAL TRAINS

Some very beautiful examples of color photography and ordinary photography with the use of the yellow filter were observed. Very few end-results were seen because of the necessity of evacuating the hospitals as soon as patients can be transported comfortably to England for convalescence.

The hospital trains as used by the British are models of completeness and sanitary excellence. They consist of passenger coaches of the finest type, more like the American car than anything else seen on this side of the water. The ordinary hospital train consists of one car with compartments for the commanding officer, his one or two assistants and the nursing sisters, along with mess and bathing facilities for each group, an operating and dressing room car, a car for baggage and supplies, a varying number of ordinary coaches for the ambulant patients, and coaches provided with racks on which the stretchers containing the recumbent patients are placed. These racks are so constructed that three tiers of stretchers can be accommodated on each side of the aisle.

One of these hospital trains will accommodate as many as 500 or 600 patients. A patient is never removed from the stretcher from the time he is placed in the ambulance at the evacuating point until his reception on the hospital ship, and in some cases until his arrival at the convalescent hospital in England. The skill, ease and rapidity with which patients are handled is remarkable, and the happy expressions on the faces of even the severely wounded and seriously ill is the best evidence of the satisfactory manner in which the transportation of the sick and wounded is being carried out.

The hospital ships are equipped in much the same manner as the hospital trains, large wards taking the places of the rack cars.

The Carrel-Dakin treatment is carried on in hospital trains and ships just as carefully as in stationary hospitals. Minor operations and dressings are done with great success in the operating rooms of both classes of invalid transport.

The majority of the cases in the hospitals in this district are medical rather than surgical, the proportion being about 60:40 per cent. The average stay of the patient in the hospital is from eight to ten days. The principal diseases found are trench fever, pyrexia (of unknown origin), pneumonia, pleurisy, gas infection, gastro-enteric infections, kidney and heart diseases, and other diseases as met in civil practice.

SURGICAL NOTES

One thing that has impressed the observer in his tour of the hospitals has been the fine team work between the various medical officers as observed everywhere, and nowhere to better advantage than in British General Hospital No. 1, which is manned by Americans. The American base hospital unit as organized at present has a well balanced medical staff representing all of the specialties. This has been taken advantage of in the treatment of all patients, so that each specialist is enabled to give his best efforts to those to whom his services are of the greatest value, and to bear his share of the routine ward work, which is cared for by all.

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[1] Eusol (Edinburgh University solution) is an acid solution of hypochlorites prepared by shaking 12.5 gm. of chlorinated lime, and 12.5 gm. of powdered boric acid with 1 liter of water. The mixture is allowed to stand for some hours, and is then filtered.—Useful Drugs, 1916, p. 44.

While our hospital units were organized primarily to care for 500 patients, unusually heavy convoys have increased the number of patients to over twice the original capacity. Experience has proved that the number of medical officers, from twenty-six to twenty-eight, is sufficient even for the increased number of patients cared for at times; but both the nursing and the enlisted staffs are inadequate to the demands thrown on them. Instead of sixty-five nurses, 100 would be the proper number to give adequate nursing service with justice both to patient and to nurse, while fifty additional enlisted men would be able to care for the extra 500 patients without difficulty.

The utilization of railroad stations, hotels and other large buildings has worked out in a very satisfactory manner. Most of the buildings seen by the observer have been wonderfully well adapted to hospital purposes. Extra ward space has been provided by the building of temporary huts accommodating from twenty to forty patients each.

Separate hospital buildings are provided for sick and injured officers, and also in a large center like Havre a special hospital is operated for sick nursing sisters.

Isolation hospitals and convalescent camps also serve their useful needs, and a new convalescent hospital capable, I understand, of accommodating up to 40,000 patients, is now being built by the British at ———.

ORGANIZATION

A surgical ward containing from forty to eighty beds is in charge of a senior and a junior medical officer and a supervising nurse with three assistants. The usual hours for nurses' duty are from 7:30 a. m. to 8 p. m. with a half hour off for noon meal, breakfast being taken before going on duty and dinner when coming off duty in the evening. If work is light, an hour for recreation is allowed in the latter part of the afternoon. In British General Hospital No. 1 at ———, a number of nurses' aides, having from one to two years' experience, are utilized and give great satisfaction. They do everything for the patients except surgical dressings and administration of medicines, and relieve the graduate nurses of a great deal of work, thus allowing them to assist the surgeons in making surgical dressings.

When a convoy arrives from the front, patients are taken from the hospital train to the hospital usually in motor ambulances, are sorted out according to their field diagnosis cards, and are allowed to rest for a couple of hours. Then each patient is bathed carefully, dressed, and a more definite diagnosis made. Unless operation or the roentgen ray is urgent, these are put off until the following day. All patients receive a preliminary dose of 500 units of antitetanic serum at the casualty clearing station, and a second dose in the hospital in from six to ten days after the first injection.

A wound, whether sutured or not, which presents local tenderness and infiltration and is not necessarily edematous and visibly infected, is incised at once and the incision carried through fascia or aponeurosis so as to allow the muscle to bulge freely. Carrel-Dakin treatment is started at once as a prophylactic measure. Many wounds of large size are not treated thus, but are exposed to sunlight with great success. A large shell wound of the thigh or buttock, for instance, will be given all the sunlight the patient can stand by moving his cot to the most exposed location, shading his face and covering the part with mosquito bar. This treatment is also very efficacious for extensive burns.

In the dressing of painful wounds, a very valuable method of anesthetizing the patient is used without danger, even though required daily. The formula of the anesthetic is: ethyl chlorid, 5 c.c.; chloroform, 1 c.c.; ether, 24 c.c. A piece of flannel cloth is saturated with the entire amount and placed over the patient's face. This is covered with another piece of flannel, and this in turn is covered with oil silk containing a small aperture, fitting over the nostrils. This is tied around the patient's face with a bit of tape or rubber tubing. The anesthesia produced will last for ten minutes, and the dressing can be started on the second breath. This anesthesia is apparently devoid of danger, is not accompanied by unpleasant complications, is followed by no deleterious after-effects, and is welcomed by the patient.

It has been found of great value, although the officer of the day attends to all emergencies, to have him call the physician or surgeon in charge of the ward if a severe hemorrhage or unusual emergency arises at night. The officer of the day occupies a special bedroom at night which is known to every one so that no time is lost in reaching him if needed.

In all of the hospitals visited, both French and English, the supply of anesthetics, instruments and paraphernalia generally seemed to be ample.

The food in all hospitals was of good variety, the quantity ample, and its preparation very satisfactory.

In hospitals not housed in permanent buildings, both wooden huts and canvas tents of various types are utilized. It has been observed that canvas tents with double walls allowing an air space of from 4 to 6 inches between are much warmer than wooden huts.

DISPOSAL OF REFUSE

It was noted with interest that in the disposal of garbage and kitchen refuse, every effort is made to save all of the fats and drippings. As these are separated from the rest of the garbage, they are run into tanks containing water which is slowly and constantly changing. The fat rises to the surface of the water and at intervals is skimmed off, gathered up and saved for glycerin making. The rest of the garbage is incinerated.

In some places large settling pits are dug, and are filled with old tin cans which have been previously flamed. Wash water and other liquid refuse from laundries and kitchens are allowed to drain into the ground through these pits.

Nothing has been observed in any of the hospitals, barracks or camps visited which in any way can compare with the latrines as devised and used by the American Army. Incineration of the feces is the method of disposal, and while it in itself is undoubtedly very satisfactory, it involves an unnecessary amount of labor in the cleaning out of latrine cans and the conveying of this material to the incinerators. A disagreeable and unhealthy stench is produced during the whole process, which is entirely obviated by the method of the American Army. The same criticism applies to urinals. The urinals observed usually consisted of ordinary galvanized iron or tin troughs which receive no other attention than an occasional flushing.

DELOUSING STATIONS

The delousing stations, which are important adjuncts of every hospital, consist of portable steam sterilizing outfits into which the clothing of new patients is placed. All clothes are subjected to steam sterilization at 215 F. for from one hour to an hour and a quarter, and then allowed to dry out in the sterilizer for forty minutes thereafter.

Some hospitals have been achieving very satisfactory results in the treatment of infected wounds, particularly of joints and sinuses, by the injection of eusol, which is a solution of chlorinated soda somewhat similar to the Carrel-Dakin solution but of greater germicidal power. This is injected directly into the diseased area every two hours or through tubes, the same as the Carrel-Dakin solution.

In some institutions ether was the anesthetic of choice, while in others nitrous oxid and oxygen was the anesthetic most frequent used.

SUTURING OF WOUNDS

One thing noted by the observer has been the amount of unnecessary surgery and after-treatment as well as undue prolongation of hospital confinement and subsequent unnecessary absence from the line, a large part of which can be avoided. This is due to too much unnecessary suturing of wounds in the casualty clearing stations.

While it is recognized that hemorrhage must be checked, sometimes by ligature and again by suture, immediate closure of wounds in these stations is to be severely condemned. Many infected wounds seen by the observer have required immediate reopening, removal of sutures and Carrel or similar treatment, because of the stitching done in the casualty clearing stations.

A great deal of unnecessary time and labor is spent in work which only has to be undone and which really is to the detriment of the patient. In many cases wounds really should be enlarged and packed instead of closed in order to afford opportunity for cleansing and drainage. The minimum amount of suturing consistent with safety from hemorrhage should be employed. A further treatment of the wound should be left to the hospitals farther back from the line. As suturing takes time and material, this work is not only unnecessary but also harmful, and is a break in the chain of efficiency which should not obtain in our system of medical relief.

BRITISH GENERAL HOSPITAL FOR VENEREAL DISEASES

British General Hospital No. 39 is a large institution of over 3,000 beds devoted entirely to the treatment of syphilis, gonorrhea and chanchroid. Four hundred of these beds are for officers. This is one of four similar hospitals conducted by the Royal Army Medical Corps for the treatment of these diseases. It is situated in the suburbs of ——— amid beautiful surroundings. It consists of huts, bungalows and tentage, the streets are well paved and perfectly drained, rows of shrubs and flowering plants line these streets, and has everything conducive to the comfort of the inmates.

A well equipped operating room with special wards for surgical patients is one of the many good features of the institution. The salvarsan room contains six tables with arm rests, irrigator stands, etc., and the intravenous treatment is frequently given to six patients at the same time. The intramuscular injection of neosalvarsan is used in a great many more cases than the intravenous—of old salvarsan—and with most excellent results.

The number of syphilis patients treated in this hospital since Jan. 1, 1915, was 11,500. To these patients were administered over 89,000 injections of salvarsan and neosalvarsan. The number of cases of dermatitis and jaundice developing was only 152, and the number of deaths occurring in this whole series was either ten or eleven.

As a result of the treatment in this hospital, the number of troops returned to the front effective for duty was over 11,000; while the number invalided to England in the last year was only seventy, which is but a fraction of the number heretofore sent home.

The French and English preparations similar to neosalvarsan and old salvarsan have proved fully as efficacious, and the standard treatment for syphilis in this hospital consists in the combination of the intramuscular injection of a suspension of metallic mercury in sterile oil and water in conjunction with the intramuscular injection of neosalvarsan, as well as the intravenous use of old salvarsan.

The Wassermann test is used in all cases before the men return to the front; but patients symptomatically cured even though exhibiting a positive Wassermann reaction are nevertheless returned to the front because they are again effective for the full military duty.

The proportion of cases of syphilis to gonorrhea is 1:3. Gonorrhea here as elsewhere has proved more resistant to treatment than syphilis. The recent cases are treated with a 1:4,000 solution of potassium permanganate, used in the ordinary way as urethral irrigations. The cases of long standing are being treated with gonococcus vaccine, which is made in the hospital laboratory, and also by means of urethral bougies impregnated with any one of the various salts commonly used for the purpose.

On inquiry as to why venereal prophylaxis was not carried out in the British Army as it is in the American, I was informed that public sentiment in Great Britain had not as yet been educated up to the same point as in America, and that the frank discussion of these matters was still more or less taboo. One of the medical officers in charge made the statement that he feared that a soldier contracting a venereal disease and not reporting for prophylactic treatment, as required in our army, would by endeavoring to conceal his condition so neglect himself as to become a more difficult case when concealment was finally no longer possible.

The other three hospitals devoted entirely to this purpose and conducted by the British Army are just as busy as No. 39, so that the enormous number of noneffectives caused by prevalence of venereal disease can be easily demonstrated.

As the startling prevalence of venereal diseases in France has been demonstrated by the experience of the armies stationed here, it is hoped that in spite of our excellent measures of prophylaxis the American expeditionary force will have sufficient hospitals in readiness for the treatment of such of our forces as become infected in spite of all our preventive measures.

THE MICRO-ORGANISM SUPPOSED TO BE RESPONSIBLE FOR SO-CALLED TRENCH FEVER

The most interesting thing observed during my several visits to British General Hospital No. 1 has been the research work being carried on in the hospital laboratory by Captain Pappenheim, M. R. C.

He has isolated a disk-like organism from a number of patients suffering from trench fever, and has grown this organism on artificial mediums as well as on blood serum.

It is found in the periosteum and around the blood vessels of the tibialis anticus muscle but not in the muscle fibers itself, and also is easily found in the stomach walls of the body louse.

The organism, as stated above, is disk-shaped, is about one-thirtieth to one-fortieth the size of a red blood corpuscle, and is best observed when overlying the corpuscle. It stains with the Wright-Giemsa stain (heated), and also with hematoxylin after being fixed with Zenker's solution. It will also stain with hot Azure 2, Ziehl-Neelsen (without much discolorization) and hot ordinary weak carbol-fuchsin. It will not stain with eosin or Gram's stain except faintly. The organisms are evidently protoplasm.

This organism is cultivated by dropping a small fragment of periosteum removed from the tibia into a slant agar culture tube. After four days' incubation a dark cottony cloudiness will appear just below the junction of the agar and the water of condensation. The organism becomes encapsulated in eight days, and appears in a sort of hanging drop formation in the tube. Under the high power, the disk when superimposed on a red blood corpuscle looks not unlike a small crescent-shaped nucleus occupying about one fifth of the area of the disk, the balance being very faintly outlined but nevertheless visible. As many as six will be found in a field. In the organisms which are evidently older, the so-called nucleus appears to be split into a number of sections of irregular shape. These older organisms are distinctly encapsulated.

As stated above, the organism has been found in every case of trench fever in the periosteum of the tibialis anticus, where the pain of the disease is located. It has also been found in the blood in a few cases. Efforts are now being made to perfect the technic of blood culture in this work. The organism has been found with great ease also in the body louse as found on patients returning from the front, and has best been demonstrated in sagittal sections of the stomach wall of the louse.

A preliminary report has been prepared, and it is expected this will be published in a forthcoming number of the *British Medical Journal.*

The work is being carried on in a painstaking manner by Captain Pappenheim and his associates, and it is hoped that other hospital units will find it of sufficient interest to investigate these findings and prove or disprove the connection of this new organism with so-called trench fever.

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NEWS OF THE TRAINING CAMPS

At Fort Riley

The second three months' period of this medical officers' training camp is nearly completed. The closing of the training camp at Fort Benjamin Harrison and the preparation for the next class of student officers at the camp have resulted in a number of changes in the staff of instructors. Lieut.-Col. H. F. Piper, M. C., comes here from Fort Benjamin Harrison as assistant commandant in general charge of instruction and in charge of student companies. Major H. M. Snyder, M. C., from Fort [illegible] is to take command of Hospital Train N[illegible] Hill, M. C., is to have charge of the professional examination of reserve officers. Major William H. Tefft, M. C., has been ordered here from Fort Douglas, Utah, to take command of Evacuation Hospital No. 7. Major Robert H. Duenner, M. C., has been ordered from Honolulu to Fort Riley to organize and command Hospital Train No. 25.

Meanwhile, preparations for new companies and for cold weather are going forward steadily. The barracks are being lined with tar paper and sheathing, and every effort is being made to have them warm and comfortable before the winter begins. Yet in spite of the lateness of the season, the beautiful Indian summer weather continues. Day after day of clear sunshine makes the outdoor work and especially the maneuvers a delight.

REGIMENTAL AND BRIGADE MANEUVERS

Following two weeks of training in equitation, each student company is given one week in regimental and brigade maneuvers and one week on a division problem. The first week, various student officers are detailed as regimental and battalion surgeons, and are given written orders directing them to proceed to certain locations designated on the map and to select suitable sites for regimental aid stations. Other student officers are detailed as commanding officers of ambulance companies, and are told to select a location for a dressing station under certain definite conditions. Other men are sent out with compasses and maps, and are told to find a regimental commander stationed at a point designated on the map and to report to him at a certain hour. In the brigade problem, brigade, regimental and battalion surgeons are appointed, ambulance companies and field hospitals are taken out and moved according to previously issued orders, and all the details of a regimental or brigade problem are worked out. But it is division maneuvers that are most fascinating. Here two companies of student officers are taken out, all the instructors are on staff duty, and all the field hospital and ambulance companies with their entire personnel and equipment are in the field, together with four or five hundred to impersonate wounded. The field of operations extends from Ogden on the east to Junction City on the west, and from North Gate to the Washington Street bridge, an area of about 30 square miles. The colonel himself is in command, and every one prepares for an all day ride.

Right after breakfast, the horses are brought up from the stables, each equipped with saddle bags. In one is the bag of oats that is to form the midday meal for the horse. In the other bag goes the lunch for the rider. The cooks have risen earlier than usual, and have made an incredible number of sandwiches. No thin and ladylike sandwiches are these, with wafer-like slices of bread and a delicate lettuce leaf between, but large, husky slices of camp bread with cheese, ham, roast beef or canned beef between them. The first day, some of the unwise arise from a hearty breakfast and scorn these mammoth hunks of nourishment, or take only a single package. But one day's riding is enough to impress on the shortsighted medical officer the amazing shrinkage that a sandwich can undergo. One that is too large to carry at 7 a. m., is so small by 12:30 that at least three are necessary to convince one that one has had any lunch. Thereafter preparedness is each man's motto. Not only does he fight with the cook to get two packages, but he even tries the time worn yarn about "the fellow in the cot next to mine didn't have time to get any and wants me to get his for him." Some, foiled by the watchful cook, wait a decent interval and then return for a second helping, with elaborate and carefully assumed innocence. But all get enough and the saddle bags are soon bulging, not only with packages of sandwiches, but also with oranges, apples, cakes of chocolate and boxes of cookies and crackers. Canteens, filled with water, tea or coffee, according to the taste of the owner, are swung to the saddle, stirrups are adjusted, girths are tightened and horses are looked over carefully, sometimes it must be admitted with some trepidation, for not all physicians are bold and dashing riders when they come here.

PREPARATION FOR BATTLE

Meanwhile, the field hospitals and ambulance companies, long lines of motor trucks or of mule drawn wagons, have come up and are waiting orders to move. The enlisted men go by in heavy marching order and halt in the road beyond. Then the headquarters automobile appears, orders are distributed to each commanding officer, and one by one the various commands move off to their stations. Only the headquarters staff is left, and finally it receives orders to report at Randolph Hill at 8:30. So off we go on a 4 mile ride. This is the Blue day, and we rode over the entire field yesterday, so every one knows where to go. A Blue army with its base at Manhattan is marching to attack a Red army that is defending Junction City. Randolph Hill, the highest point in the northeast quarter of the reservation, is Blue headquarters. From the top, one can view the entire field. It is a clear, sharp November morning. The sun is just getting up above the hills. The mist lies thick in the valleys, but the wind blows sharp and chill on the hill top. Sheepskin lined coats and heavy gloves feel good, though later on when the sun gets higher, even a khaki blouse will be too heavy.

The staff is gathering on the hill, each group as it comes up dismounting and giving the horses to the orderlies, who lead them to the rear. All gather about the colonel, who as division surgeon is in command of the entire sanitary force. Maps are spread out on the grass, and the Blue position traced out. Soon orderlies on horseback or on motorcycles begin to appear. The battle is on. Each commanding officer as he reaches his position reports to headquarters and receives further orders. Each detachment commander is given several sealed envelopes to be opened at 9, 10, 11 and 1:30. In them are orders for him to carry out, by which the progress of the battle is carried on. As each report reaches headquarters, the situation is discussed and members of the staff are asked to suggest a proper solution. As one commander after another reports heavy casualties, the director of ambulances or the director of field hospitals is called on to establish dressing stations, evacuate the wounded, or set up hospitals. An orderly is sent with a message to an ambulance company, awaiting orders several miles away, to advance by a certain road and take care of the wounded. The orderly disappears. Half an hour or an hour goes by without apparent result. Field glasses are brought out, and the road on which the ambulance train is to appear is closely watched. Finally some one shouts, "There they are," and far away, over the crest of the hill, appears the head of the column. Slowly the ten motor ambulances, the trucks and supply wagons, the automobiles and motorcycles wind across the ridge in a long procession and disappear in the valley below. Discussion is now heated. Did the commander expose himself and his train to the Red artillery fire on Morris Hill? If so, is he *hors de combat* or not? Finally, everybody agrees that "Ambulance Company 19 is all shot to hell," and that it is time for lunch anyway. So this interesting but convenient battle stops for lunch. Saddle bags are opened and everybody drops down on the dry, warm grass. Surely those sandwiches can't be as large as they were a few hours ago. Those who have secured a double supply congratulate themselves, while the less thrifty vow that tomorrow they will do likewise. Canteens are passed around, and cigarets, cigars and pipes are produced. By 1:30 the battle is resumed, and by 3 the Blue army is in full retreat, with a large number of wounded that must be cared for by the regimental surgeons, the dressing stations and the hospitals. How are they doing their work? At 3:30, the colonel folds up his map and draws on his gloves. "Mount up, gentlemen. We will ride the Blue battle line." And off we go. All the positions are carefully examined, the location of the regimental aid stations and dressing stations criticized, and the various problems involved discussed. From one position to another we go, sometimes by road or lane, more often across country, working back from point to point until we reach the Blue base, perhaps 8 or 10 miles behind the battle line. Here are gathered all the field hospitals, ambulance companies and sanitary troops. Tents are all pitched in perfect alinement; stoves are unpacked; even operating tables with instruments and basins are ready. Ambulances and motor trucks are parked in long rows. The men that are on field rations are cooking their supper, but all rise and stand at salute as the staff rides past. In front of each company are two flags, the Stars and Stripes and the Red Cross, twin emblems of Liberty and Mercy. We ride past the twenty-four big ward tents, the kitchens, the officers' tents and the long line of pup tents of the men, and finally in the glow of the early evening turn toward camp and supper, tired but feeling sure that of all the good things at Fort Riley, division maneuvers are the best.

DISEASE CONDITIONS AMONG TROOPS IN THE UNITED STATES

Extracts from Telegraphic Reports Received in the Office of the Surgeon-General for the Week Ending Nov. 16, 1917

1. Total strength of troops		1,065,418
Admission rate per 1,000 (disease only)	annual	1,412.7
Non-effective rate (all camps)		34.9
2. National Guard, strength (camps)		391,199
Admission rate per 1,000 all camps (disease only)	annual	1,697.3
Non-effective rate all camps (all causes)		42.6

Camps showing admission rate for disease higher than average: Camps Beauregard, Wheeler, Bowie, Kearney, Sevier and Cody.

Camps showing non-effective rate all causes higher than average: Camps Wheeler, Beauregard, Bowie, Sevier, Kearney, Shelby, Cody, and MacArthur.

3. National Army, strength (camps)		413,487
Admission rate per 1,000 all camps (disease only)		1,427
Non-effective rate all camps (all causes)		28.5

Camps showing admission rate for disease higher than average: Travis, Pike, Funston, Jackson, Lewis, Dix and Dodge.

Camps showing non-effective rate all causes higher than average: Camps Pike, Funston, Travis, Jackson, Lewis and Dodge.

4. Venereal Disease—		
Admission rate Regulars	annual	94.3
Admission rate National Guard (camps)	annual	74
Admission rate National Army (camps)	annual	95.3

Camps National Guard having rate above average: Camps Kearney, Beauregard, Wheeler, Sheridan, Logan and Doniphan.

Camps National Army having rate above average: Camps Jackson, Lee, Gordon, Sherman and Travis.

5. Number of cases of pneumonia		397
Highest number in any one camp	(Pike)	54
Number of cases of meningitis		48
Highest number in any one camp	(Funston)	13

6. SPECIAL DISEASES REPORTED DURING THE WEEK ENDING NOV. 16, 1917

Division	Pneumonia	Dysentery	Malaria	Venereal	Paratyphoid	Typhoid	Measles	Meningitis	Scarlet Fever	Strength of Command
27th, Wadsworth..	4	...	...	31	...	...	....	...	...	31,895
28th, Hancock.....	1	...	...	30	...	1	1	...	...	28,776
29th, McClellan....	4	...	2	18	...	...	2	...	...	26,588
30th, Sevier........	45	...	4	19	1	...	790	5	...	27,356
31st, Wheeler......	47	...	6	46	...	...	975	2	...	22,681
32d, MacArthur..	2	...	1	26	...	1	45	...	2	26,610
33d, Logan.......	10	...	4	51	...	2	4	...	1	32,781
34th, Cody........	4	...	...	11	...	...	100	...	1	25,758
35th, Doniphan....	20	...	1	43	...	...	31	4	1	25,674
36th, Bowie........	32	...	1	34	...	1	734	1	1	25,641
37th, Sheridan.....	7	...	...	40	...	...	24	...	1	24,102
38th, Shelby.......	14	...	4	37	...	...	860	...	...	29,341
39th, Beauregard..	10	...	15	41	...	...	918	2	...	16,750
40th, Kearney.....	5	...	...	100	...	...	38	1	...	24,503
41st, A. L. Mills...	6	...	...	27	...	...	32	...	3	22,661
76th, Devens.......	1	...	...	20	...	...	6	...	...	26,500
77th, Upton.......	1	...	...	11	...	...	....	...	...	24,332
78th, Dix..........	...	...	...	28	...	10	....	...	...	16,000
79th, Meade........	...	...	...	15	...	...	11	...	...	32,687
80th, Lee..........	6	...	2	178	...	3	21	3	...	34,520
81st, Jackson.....	4	...	1	181	...	...	285	...	...	15,414
82d, Gordon......	2	...	...	65	...	1	74	1	...	27,789
83d, Sherman.....	6	...	...	72	...	...	5	2	...	33,063
84th, Taylor.......	11	...	...	27	...	...	62	1	...	25,152
85th, Custer.......	...	...	...	6	...	...	20	...	1	15,457
86th, Grant........	4	...	...	17	...	...	....	3	1	24,702
87th, Pike.........	54	...	5	19	...	...	611	10	12	22,387
88th, Dodge.......	11	...	...	3	...	...	27	...	3	22,866
89th, Funston.....	45	...	1	40	...	...	118	15	...	26,645
90th, Travis.......	32	...	9	63	...	...	647	...	...	32,203
91st, Lewis........	11	...	...	13	...	...	19	...	...	35,165

	Regulars, U. S. Army, in U. S. only, 1916		Regulars in U. S. week ending Nov. 16, 1917		Nat'l Guard, All Camps, week ending Nov. 16, 1917		Nat'l Army, All Camps, week ending Nov. 16, 1917	
	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Admissions, diseases only, annual rate per 1000	....	613.00	....	822.6	....	1697.3	....	1427.0
Pneumonia..........	....	2.59	24	5.6	211	28.0	188	23.6
Dysentery..........	....	3.97	3	0.7	....	......	....	......
Malaria............	....	12.52	7	1.6	38	5.0	19	2.4
Venereal...........	....	91.00	403	94.3	557	74.0	758	95.3
Paratyphoid.......	....	0.31	....	......	1	0.1	....	......
Typhoid............	....	0.21	....	......	5	0.6	15	1.9
Measles............	....	20.29	117	27.3	4054	539.9	1988	250.0
Meningitis.........	....	0.29	....	......	15	1.9	33	4.1
Scarlet fever.......	....	0.59	21	4.9	10	1.3	17	2.1

7. Deaths by causes: pneumonia, lobar, 73; bronchopneumonia, 2; cerebrospinal meningitis, 10; tubercular meningitis, 1; meningitis following mastoid operation, 1; tuberculosis, pulmonary, 3; appendicitis, 2; nephritis, 2; diabetes mellitus, 1; pyemia, 1; empyema, 1; malaria, 1; typhoid fever, 1; dysentery, 1; diphtheria, 1; pleurisy serofibrinous, 1; hemorrhage from gastric ulcer, 1; sarcoma of pelvis, 1; suicide, 4; traumatism, 13.

NEWS OF THE CANTONMENTS

Thirty-First Division, Camp Wheeler, Macon, Ga.

BASE HOSPITAL NOTES

Major Richard Weil, chief of the medical service, died on Nov. 19, 1917, of pneumonia, contracted in line of duty. Undoubtedly conscientious work had much to do with his illness and untimely demise. His character, ability and personality greatly endeared him to all the officers, men and patients with whom he came in touch. Brief military honors were given the remains.

The Surgeon-General of the Army and staff visited the hospital, November 23 and 24. In addition to his personal staff, Dr. W. H. Welch of Johns Hopkins University accompanied him in an advisory capacity.

The porches are all screened with canvas and the patients seem happy and content and do not complain of the cold. The permanent stoves have been installed in practically all of the buildings. The officers' and isolation wards are now occupied, leaving the psychiatric ward only without patients.

Heavy clothing is coming at last, and it is hoped that pneumonia will decrease as a result of its arrival.

The hookworm treatment is being generally given, when chenopodium can be secured. This also will, it is hoped, reduce the amount of pneumonia.

SCARLET FEVER AND MENINGITIS

Scarlet fever has appeared in camp, there being in the hospital ten cases. Only two new cases of meningitis have developed since last week.

MEASLES

The epidemic of measles is drawing toward a close. Over 2,800 cases of measles have been treated in the base hospital. The high water mark was 1,201 cases in hospital. The greatest number received in one day was 175 cases. The number of deaths from bronchial pneumonia complication has amounted to a trifle more than 1 per cent. No middle ear or other complications have occurred, excepting bronchial pneumonia, and possibly tuberculosis.

PNEUMONIA

Pneumonia is the fatal disease of the camp and has not decreased with the decrease in measles. The total number of cases of lobar pneumonia has been 243. Of these practically 25 per cent. followed measles, and 75 per cent. was independent of measles. The percentage of deaths has been 11. Of eighty-eight cases, of which the type was determined by inoculating mice, seventeen were of Type I, six of Type II, five of Type III, and sixty of Type IV. A careful study of all pneumonia cases is being made and it is believed that much light will be thrown on the epidemiology of this disease. The theory that it is infectious and that cases are transmitted from other cases, either by direct or intermediate infection, is being insisted on by Colonel Duncan, the division surgeon.

VISITORS

Many distinguished visitors have been drawn to the camp recently; partly by reports of the epidemic of pneumonia.

Mr. W. J. Harris and Senator Hoke Smith were visitors on Wednesday. The daughters of Gen. Joe Wheeler were here on Monday.

On Friday, Surgeon-General Gorgas arrived from Washington, D. C., accompanied by Majors Victor Vaughan, T. C. Janeway, William H. Welch of Johns Hopkins University and Colonel Howard of the Surgeon-General's Office. The Surgeon-General and Majors Welch and Vaughan addressed all the medical officers at 2:30, and all the field officers of the division at 4 o'clock.

Colonel Fisher, medical inspector, was in the camp on Sunday and Monday, going on afterward to Jacksonville.

ONE HUNDRED AND SIXTH SANITARY TRAIN

The equipment of the train has been greatly augmented by the receipt during the past week of three complete equipments for ambulance companies and one equipment, complete, for field hospitals. The motor ambulances for Ambulance Company No. 123 have also arrived, have been assembled and are now in operation. The latter part of last week a consignment of ten Indian motorcycles with side-cars were delivered. This completes probably the motor equipment that will be delivered at this station. The Dodge cars for the motor companies and the directors have not and probably will not come.

The regular weekly social of the train was held in the recreation hall, Wednesday evening, and was largely attended. A most enjoyable evening was had to the strains of the orchestra of the Florida Field Hospital, which is now completed by the acquisition of a snare drum and base drum.

The process of eliminating from the train the large number of accumulated mascots, ranging from wolfhounds to Chihuahua dogs, goats, pet possums and rabbits, is progressing to a successful finish. The next few days will see the completion of this work.

NOTES

Coughs and "colds" are widespread in the camp and in this whole region. The dust, from the continued dry weather, seems to be a factor in the spreading of these coughs.

The Thirty-First Division has finally received a definite name, the Dixie Division, with the insignia ƆD, two D's, one reversed.

The work of the vice commission and of the local committee has finally begun to bear fruit in a cleaning up of Macon hotels, and in lessening the number of streetwalkers.

There is general comment on the poor class of men furnished by the draft. Many from the rural districts are miserable physical specimens, some with anemia from malaria, other from hookworm, others poorly developed, and all falling an easy prey to measles, pneumonia, or any other infectious disease. Although the weather is not at all bad, being rather fine, there is much sickness among the 10,000 drafted men; but very little among the 11,000, old guardsmen. While Camp Wheeler is called a National Guard camp, it is now almost one-half National Army, and will be three-fifths National Army when filled to war strength.

The Thirty-First Division has sent no patients to any hospital outside the camp. All patients, from the beginning, have been handled here, first in the field hospitals and later in the base hospital, which has cared for more than twice its rated capacity.

Thirty-Fifth Division, Camp Doniphan, Fort Sill, Okla.

Camp Doniphan and its base hospital were subjected to official inspection this week; Col. William R. Lewis looked after the sanitary conditions of the camp and Major M. Black, M. R. C., investigated the base hospital. Owing to the lateness of the authorization of necessary funds, the sewerage system has not yet been installed, and this will delay the completion of the hospital, it is estimated, for another month and one half to two months; in the meantime concrete cesspools are installed for some of the wards and the quarters for the staff.

The meeting of Wednesday night, November 14, was devoted to discussion of the venereal disease problem. Lieutenant C. A. Coleman, speaking from an extensive experience in private practice, outlined briefly what he believed to be essentials in the handling of the venereal disease problem of the Army. The paper was received with a great deal of interest, and was discussed by officers of the field as well as members of the staff of the base hospital.

Friday night, Capt. Lee H. Bailey of the British Army spoke on the use of the bayonet; though more military than medical, the paper nevertheless was listened to with a great deal of interest.

DISEASE INCIDENCE

The number of infectious diseases unfortunately is still on the increase, over forty pneumonia patients being treated at the hospital at this time. The past week also had two deaths from meningitis to record, one of which showed generalized infection due to the *Diplococcus intracellularis*. Though both of these cases were brought to treatment promptly, the serum treatment proved of no avail. Owing to the still incomplete state of the laboratory, it has not been possible to make satisfactory bacteriologic examination to determine the particular strain of the meningococcus; therefore it cannot be stated whether the death of these patients must be assigned to the presence of a foreign strain of the meningococcus or whether the serum used was defective.

Thirty-Eighth Division, Camp Shelby, Hattiesburg, Miss.

The medical organization of the Thirty-Eighth Division, which consists of National Guard troops from Indiana, Kentucky and West Virginia, is now almost complete.

The regimental infirmaries are being equipped with a modified Wolfe ward unit which gives a well equipped hospital of twenty beds for each regiment. Hotel ranges are supplied for the kitchens, and heating stoves are being installed.

On Monday and Thursday nights, meetings for all medical officers are held. Monday nights are devoted to medicomilitary subjects, and Thursday nights to purely professional papers with reports and presentation of clinical cases, of which there are an abundance in the base hospital.

BASE HOSPITAL

The base hospital is complete with the exception of the ceiling of the wards. On account of the present epidemic of measles, it is now crowded to its utmost, and the tentage of three field hospitals has been pitched to care for men with mild cases, thus relieving the congestion of the wards. The ward tents are floored, and have stoves and iron beds. In this camp, experience has proved that measles patients do fully as well under canvas as in buildings.

MEASLES

This camp, as well as many others, is suffering from an epidemic of measles. The disease, however, seems to be of a mild type, often running an afebrile course. There have been only two cases of pneumonia in 500 cases of measles, and no other complications. In an effort to control this epidemic, very strict orders have been issued regarding sanitation of tents, personal hygiene, and physical inspections. Although these orders are well carried out, they seem to have little or no effect on the development of new cases. Climatic conditions, dust and smoke, and the age of troops, together with the arrival of drafted men from other camps, no doubt have much to do with the continuation of the disease.

PNEUMONIA

There have been about sixty cases of pneumonia, principally of the lobar type and running a clear cut typical course. The death rate is low, only about 4 per cent., and the infection does not seem to be of a virulent type. The laboratory work of differentiating the various strains of pneumococci is now under way, and in a short time it will be possible to administer specific serum therapy in suitable cases.

MENINGITIS

During the month of October, six cases of meningitis developed in this command. Four were in one regiment and appeared within three days. The regiment was promptly moved to an isolation camp; rigid quarantine was instituted, and under the direction of a medical officer every man in the organization gargled his throat and douched his nose twice a day with Dobell's solution. As rapidly as possible, members of the companies in which the cases appeared were examined for carriers. When these were found, they were isolated from all others and given intensive treatment with dichloramin-T until negative cultures were secured. This prompt action evidently cut short an epidemic that was reaching alarming proportions. The cases were of moderate severity, with only one death.

PERSONAL

The office of the division surgeon is busy with routine work, special instructions, inspections, etc. Lieut.-Col. Robert M. Blanchard is the division surgeon; Major Larue D. Carter, division sanitary inspector, and Capt. Abraham C. L. Percefull, assistant to the division surgeon.

Colonel Blanchard, Majors Hibbitt and Grant of the sanitary train, and Majors Crawford and Lathrop of the base hospital staff recently returned from the meeting of the Southern Medical Society, held at Memphis, Tenn. It was hoped that Colonel Goodwin of the British Army would give this camp a visit; but it could not be arranged, much to the disappointment of all officers.

Social activities among the medical officers have been curtailed on account of the immense amount of work on hand. All are cheerful and happy, however, and not growing stale in their duties.

Eightieth Division, Camp Lee, Petersburgh, Va.

November 5, the regular course of instruction of medical officers and Medical Department enlisted men was put into effect. The course prescribes thirty-eight hours' work a week, and is being carried out by the sanitary train and regimental detachments. The work of the sanitary train is handicapped because no enlisted men have as yet been available for one ambulance company and three field hospitals.

A most interesting clinic was held at the base hospital on November 22, which was attended by the medical officers of the division and the base hospital. Major Ewing Day, M. R. C., described the functions of the semicircular canals and the various nerve paths leading from the canals to the brain. Major Day also demonstrated the Bárány test on a normal individual and also on a man who had become deaf as a result of cranial injury. Major William L. Peple, M. R. C., gave an illuminating talk on appendicitis, stating that twenty cases had been admitted to the base hospital since its opening and all had been operated on and were doing well. Capt. Joseph B. Sayles, M. R. C., showed an interesting case of pellagra and one of favus.

A regular meeting of the medical officers attached to the division and base hospital is being held weekly on Wednesday afternoons at which administrative affairs are discussed. Thursday evenings a clinical meeting is held at the base hospital.

At the clinical meeting, November 15, Major Ross Moore, M. R. C., chief of the neurologic section of the base hospital, demonstrated a series of cases showing types of mental cases and diseases in the Army. Two neuropsychopaths, one hypochondriac, two dementia praecox patients and two with paranoid personality were shown. The officers were much interested in the clinic, and there was general discussion as to whether any of the men demonstrated should remain in the Army.

NEUROLOGIC EXAMINATIONS IN THE DIVISION

During the last ten days the routine neurologic examination of enlisted men in this division has been begun in earnest. Capt. J. M. W. Scott of Schenectady, N. Y., has been acting as neurologist to the base hospital ever since its opening, two months ago. About November 1, Lieut. Bennett A. Burks of Alabama, Lieut. Dudley C. Kalloch of Ossining, N. Y., and Major Ross Moore of Los Angeles arrived for the purpose of making this routine examination.

Approximately 20,000 out of the 33,003 troops in camp have already been examined by the psychologists. The final discards from this examination, the mental defectives of such low degree as to be considered unfit for duty by the psychologists, are being studied by Major Moore and his assistants to determine their final disposition.

During the early weeks of psychologic testing, the mental age of 10 years was gradually settled on by Captain Scott and the psychologists as being the lowest average level for Army service. This conclusion was based on studies of companies that were composed to a large extent of American born men of American born parents. Studies made during the last ten days of some companies from western Pennsylvania and West Virginia, composed in large proportion of foreign born men, mostly illiterates, are showing that a mental age of 10 years is too high. Many men have been accepted for the Army who can neither read nor speak English, but who are expert workmen in steel mills, etc., and whose mental age lies between 8 and 10 years. The general conclusion at present, therefore, is that foreign born illiterates of a mental age of 8 years and upward will make good Army material, while 10 years and upward is the low limit for American born illiterates. The differentiation is a very real one, and is graphic evidence of how men differ in their ability to react to surroundings. The many American born illiterates of these examinations have had opportunities for intellectual betterment but have not profited by them or have even retrograded, while many of these foreign born illiterates have had no such advantages but are eager to secure what they can now. In these large group tests the proportion of illiterates included is great enough to make a difference of two years in the age of acceptance between American and foreign born illiterates. This phase of the investigation is still young. Other conclusions may be reached after further study. Another and a larger psychiatric and neurologic study now in process of accomplishment is the study of the enlisted men with a view to the elimination of the unfit. The latter are the pathologic, neuropaths and psychopaths, and the insane. The feebleminded are being inexorably detected by the psychologists, and their final disposition is easily accomplished. The detection of the psychopaths and neuropaths is quite another matter. The plan in use at the present is as follows: Work is done by regiments in regimental infirmaries. The regimental medical officers are asked to hand in the names of men who have been noted as acting queerly in some way, or to be unable to fit themselves into the Army life well enough to get along—men who seem unable to learn the drill, etc.—and all men suspected of malingering. These men are studied individually by the neurologists, the evidence of their company commanders is taken, they are put through drill and other tests, and are often sent to the base hospital neurologic wards for observation. In other cases they are returned to the ranks for two weeks for further training. It is thought that this procedure will ultimately eliminate a large proportion of the neurologically unfit.

HEALTH OF THE DIVISION

The general health of the division remains good although an outbreak of mumps and measles, limited to two regiments has increased the sick rate. There are sixty-four cases of measles and one hundred and thirty-one cases of mumps. There have been twenty cases of pneumonia and only one death, and eight cases of cerebrospinal meningitis with but one death.

VENEREAL DISEASES

Effort is being made to secure a report of every new case of venereal disease whether the man is in hospital, quarters or doing duty. In order to study carefully the work of each infirmary, a weekly report on prophylaxis and venereal disease is rendered by each organization surgeon. The prophylactic treatments given during the week are grouped into those given within an hour, one to two hours, two to four hours, four to eight hours and over eight hours. The number of cases of gonorrhea, chancroid or syphilis which occur in spite of prophylaxis are reported and grouped according to the time the prophylactic treatment was given. Cases that were undoubtedly infected prior to enlistment are classified separately as are also cases that have developed in men who fail to take prophylactic treatment. Prophylaxis stations are maintained in Hopewell, Va., a city of 15,000 people, 6 miles away and in Petersburg, four miles away, a city of 30,000. By means of the reports it will be possible to learn the proportion of cases occurring in the various commands before and after enlistment, the efficacy of prophylaxis early and late and the extent of immorality, and finally the definite number of cases of syphilis, gonorrhea and chancroid.

Eighty-Fourth Division, Camp Zachary Taylor, Louisville, Ky.

ATHLETIC TRAINING

Compulsory athletic training has been added to the schedule of daily life at Camp Zachary Taylor. Heretofore, the soldiers have spent eight hours a day at drill; now one hour a day at athletics will be substituted for an hour of drill. From 10:30 to 11:30 each day, compulsory athletics on a scientific and systematic basis will be indulged in. There will be physical drill or calisthenics, boxing and wrestling, football, blocking, charging and tackling, obstacle and relay racing, basketball, volley ball, baseball and soccer football. An athletic officer has been appointed in each regiment, separate battalion and independent unit, who are charged with supervision and direction of the physical training, with a Louisville man, Capt. George R. Ewald, as division athletic officer. Eight men are in the hospital because of injuries received in these exercises, two with fractures of the clavicle.

CONSCIENTIOUS OBJECTORS

Sixty members of the Mennonite faith from Illinois sprang a surprise on the division paymaster when they refused to accept their pay. They are conscientious objectors, and are called absolutists, as they object to serving in the Army in any capacity. The only work they are performing is keeping their quarters clean.

MEASLES

Heavy punishment is being meted out by the summary court martial in the Three Hundred and Thirty-Sixth Infantry to men who break the quarantine for measles and go into the city without leave. Three men recently tried in Company D were sentenced to ninety days in the guard house and three months' loss of pay. The epidemic as far as new cases are concerned is about over. One death has occurred from a complicating bronchopneumonia. Each organization has received orders to be prepared to send its men to the base hospital, on request of the division surgeon, for the psychologic examination. Every man in camp will eventually be put through these tests.

AMBULANCE COMPANIES

Ambulance equipment for the Three Hundred and Ninth Sanitary Train has arrived, and this organization will perform the ambulance service for the entire camp. Four companies of the sanitary train are known as ambulance companies; two more motor drawn units, and the other two derive their power from the famous Army mule. Ambulances will call at 9 o'clock each morning and 3 o'clock each afternoon at all regimental infirmaries and transfer patients to the base hospital. Two ambulances are kept on duty at the base hospital day and night.

First Lieut. Lynn T. Hall of Ambulance Company No. 355 has been designated as attending surgeon of the Infantry School of Arms. He will maintain a dressing station near the school, and will have an ambulance ready at all times.

NURSING SERVICE

More Red Cross nurses have reported to Major J. A. Worthington, the nursing staff now numbering thirty-four. A meeting was held on the 19th at the Children's Free Hospital for the purpose of stimulating interest in Red Cross nursing and recruiting for the base hospital at Camp Zachary Taylor. A reception to the Army nurses on duty was held after the meeting. A number of the nurses assigned to Base Hospital No. 40, Lexington, Ky., have asked for transfer to the base hospital at Camp Zachary Taylor pending foreign orders.

REPORTS OF MEDICAL OFFICERS

Several medical officers from the base hospital attended the meeting of the Medico-Chirurgical Society, November 16. Major Hamburger made a brief report of the epidemic of measles that has been so prevalent in two regiments, and now has begun to spread among those attached to the hospital, one nurse, one medical officer in the eye section, and several hospital attendants being affected. The rashes have been almost uniformly severe, a large percentage being hemorrhagic. There have been a number of complicating bronchopneumonias, and the marked early cyanosis in these cases has been an outstanding feature. In the fatal cases the necropsy findings in the lung have been uniformly a most diffuse riddling of the lung with patches of bronchopneumonia and a great amount of exudate everywhere.

The seven meningitis patients are doing well under the serum treatment; four are convalescent. The lobar pneumonia patients have progressed well, with a very small percentage of deaths.

Lieutenant Alexander, who has had long training in the laboratory side of pneumonia in Boston, New York and Baltimore, reported that 65 per cent. of the lobar pneumonias have been found due to Types I and II, and that these organisms are not found in normal mouths. The bronchopneumonias are due to a typical Type II, and Types III and IV, and these types are found normally in healthy mouths. On this theory more consistent and regular oral hygiene and antisepsis will be used in the measles cases particularly. A good deal of polyvalent serum has been used, and a shipment of Type I serum has just been received. The cases at Rockefeller Hospital under the specific serum treatment reduced mortality from 30 per cent. to 5. The polyvalent serum is used before the type of organism is known. It is purposed to standardize the various types of serums received from the manufacturers. In the tests some of the serums have been found useless in vitro. It is hoped that all can be standardized.

Major Wilder and Captain Littig of the ophthalmologic staff at the hospital occupied the program of the regular meeting of the ophthalmologic society, on the 15th.

BASE HOSPITAL

The base hospital, now nearly completed in every detail, occupies 85 acres and sixty-seven buildings, with 1,000 beds. Sixty-five physicians, 288 enlisted men and thirty nurses care for the 560 patients now in the hospital.

Eighty-Eighth Division, Camp Dodge, Des Moines, Iowa

An intensive course of training for all medical officers has been outlined by Lieutenant-Colonel Shook, the division surgeon, pursuant to an order from the Surgeon-General. Excellent lectures have already been given by Major Miller on "Foreign Protein Therapy"; Major Ruth on "Treatment of Fractures of Head and Neck of Femur"; Captain Baehr on "War Psychiatry"; Captain Glomset on "Carriers," with special reference to typhoid, diphtheria, epidemic meningitis and pneumonia, and by Major Todd on "Practical Hints to Military Medical Officers on the More Common Diseases and Treatment of the Eye, Ear, Nose and Throat."

The Camp Dodge Medical Society, composed of all the medical officers of this cantonment, has been formed with Major Todd as president. Meetings are being held weekly. Interesting and instructive papers have been given by Contract Surgeon Feil and Captain Franing.

Major John Ridlon was in camp about ten days ago, and gave a series of lectures and demonstrations to medical and line officers.

NEWS NOTES

Col. Charles Dircle of the Medical Department of the French Army and Col. T. H. Goodwin of the British Medical Service visited and inspected this cantonment some time ago. They report that the camp and type of work being done is excellent. Each officer spoke before the meeting of the Polk County Medical Society on that date, and gave some interesting and vivid descriptions of modern warfare.

Major Alexander Cooper of Fort Oglethorpe, Ga., has been assigned as commanding officer of the base hospital.

Major E. O. Craft has been assigned as commanding officer of the base hospital at Presidio, Calif. He was highly commended by the commanding general for his excellent work of organizing and commanding the base hospital at this camp.

Capt. E. C. G. Franing of Galesburg, Ill., has been given detached service at Chicago, to attend the special course on fractures given there.

Capt. L. L. Henniger of Council Bluffs, Iowa, has been transferred to Fort Porter, N. Y.

Lieut. John Voss and M. C. Frazier have been given detached service at Chicago, to attend a special course on oral surgery.

BASE HOSPITAL

The base hospital moved into permanent quarters, October 25 and 26. The new hospital is situated at the northwestern end of the camp, close to the village of Herrold. It is composed of thirty-two buildings, built about a central quadrangle about 100 yards wide and 150 yards long. These buildings are all connected by closed corridors.

Eighty-Ninth Division, Camp Funston, Fort Riley, Kan.

INCLEMENT WEATHER

The weather at this camp was a subject of great disparagement during the latter part of October. It was typical winter weather, accompanied by snow storms, and, as the heating plants were not installed, one often had to go to bed to keep warm. At present we are having beautiful, warm winter days and clear nights, and it is unnecessary to heat the barracks, excepting for a short time each morning.

INSPECTION

Col. W. P. Chamberlain, M. C., and Col. George E. Bushnell, M. C., of the War Department, have just completed a tour of inspection of the camp, and they have expressed themselves favorably regarding the condition of the cantonment. They could hardly believe that the number of new cases of venereal disease contracted by men after coming to this camp was so low. Since the camp was started, there have been but five, and prophylactic treatments have been likewise sparingly called for, although every man in the division has been properly instructed on the subject.

QUARANTINE

With regard to the prevention of disease in this camp, a quarantine has been established between the Ninety-Second and the Eighty-Ninth divisions, and the men from the two do not intermingle, conducting all drills and duties separately. As another step, all of the roads, dirt or macadamized, have been well oiled and rendered dustless.

MENINGITIS

By taking frequent and systematic cultures, a number of meningococcus carriers among the new troops have been apprehended and isolated, and as a result few new cases of meningitis are expected.

Ninety-First Division, Camp Lewis, American Lake, Wash.

The cantonment at Camp Lewis is on a prairie 16 miles southwest of Tacoma; it is 2¾ miles long by 1 mile wide. The soil is composed of much small rock and gravel, and the drainage is excellent. Construction was started, June 20, 1917, and completed, according to the original plan, September 15. There are 1,600 buildings all told on the ground, 35 miles of water pipe, and 35 miles of sewer line. Lieut.-Col. Peter C. Field, M. C., is division surgeon, Lieut.-Col. Lloyd L. Smith, M. C., division sanitary inspector, and Major Eugene G. Northington, M. C., commanding officer, of the base hospital. The remaining medical officers belong to the Medical Reserve Corps, and hail from all parts of the West and particularly from the Northwest. There are 166 medical officers, 20 contract surgeons, 38 dental officers and 15 veterinarians.

The sanitary condition of this camp is excellent. Very few cases of acute contagious diseases have appeared. The prevailing diseases are those of the upper respiratory tract: bronchitis, tonsillitis and pharyngitis.

The following officers are in charge of the different services of the base hospital: Major Eugene G. Northington, M. C., commanding officer; Major Herbert M. Greene, M. R. C., adjutant; Major Calvin S. White, M. R. C., chief of the medical service; Major John J. Kyle, M. R. C., chief of the ophthalmic division; Capt. Ernest L. Bickford, M. R. C., chief of the laboratory service; Capt. Edward A. Rich, M. R. C., chief of the orthopedic service; First Lieut. Horace J. Whitacre, chief of the surgical service, and Capt. Rawlins Cadwallader, M. R. C., post exchange and mess.

The operating room and roentgen-ray room are completed in every detail and are running in smooth order. The hospital is fully equipped throughout with steam heat and electric lights. There are now attached to the hospital, 40 medical officers, 30 female nurses and 240 hospital corps men. The base hospital and sanitary train occupy about 40 acres.

Nearly all cases of venereal diseases were contracted before the men arrived at camp. Only two new cases have been reported. Practically the entire command is vaccinated against smallpox; typhoid and paratyphoid prophylaxis has been given. All new men are marched from the train to the receiving tent, where they are carefully examined for contagious and venereal diseases.

ORDERS TO OFFICERS OF THE MEDICAL CORPS

To Camp Beauregard, for duty, Lieut. ERNEST E. ALLGEYER, New Orleans.

To Camp Sheridan, base hospital, from Plattsburg Barracks, Capt. GEORGE W. JEAN.

To Camp Mills, as inspector instructor of sanitary personnel and on completion to return to his proper station, Major CONDON C. McCORMACK.

Col. GEORGE E. BUSHNELL, to the following named camps to inspect the work of tuberculosis examiners and on completion to his proper station, *Camp Beauregard, Camp Pike, Camp Funston, Denver, Colo., Camp Dodge, Camp Grant.*

Major EDGAR KING, to the following named places for duty in connection with the development of special hospitals, and on completion to his proper station, *Long Beach, Asbury Park.*

Major EDGAR D. CRAFT, *to San Francisco,* Letterman General Hospital for duty, from Camp Dodge.

Lieut.-Col. CHARLES F. CRAIG, to be relieved from duty at the dept. laboratory, Fort Leavenworth, Kan., and to the following camps to inspect the Public Health Laboratory work, and on completion to proper station: *Camp Dodge, Camp Grant, Camp Custer, Camp Sherman, Camp Taylor, Camp Funston.*

Col. BASIL H. DUTCHER, be relieved from duty in the Panama Canal Dept. and *to Washington, D. C.,* to report in person to the Surgeon-General for duty.

Col. HENRY C. FISHER, to the following named places to make sanitary inspections, and on completion to his proper station, *Camp Wheeler, Camp Beauregard, Camp Shelby, Camp Jackson, Camp Sevier.*

Col. DAVID BAKER, relieved from duty at El Paso, Tex., and *to Camp Sheridan* for duty in command of the base hospital.

Lieut. GEORGE W. BELLER, relieved at Fort Casey, Washington, and *to Seattle,* for duty as medical member of examining board and recruiting officer.

Lieut.-Col. WILL L. PYLES, relieved at Fort Niagara, N. Y., and to the following named places to inspect buildings and sites under consideration for use as hospitals, and on completion to his proper station, *Rochester, N. Y., Dansville, N. Y., Avon, N. Y.*

Major LEARTUS J. OWEN, relieved at Letterman General Hospital, San Francisco, Calif., and assigned *to station in Washington, D. C.*

Lieut.-Col. WILLIAM R. MONCRIEF, *to New York* for duty, and on completion to his proper station.

Major WILLIAM E. HALL, relieved in the Panama Canal Dept. *to Governors Island, N. Y.,* for duty.

Lieut. EDWARD A. COATES, Jr., relieved at Fort Des Moines, Ia., and *to Fort Riley* for duty.

Lieut.-Col. JOHN R. BOSLEY, relieved at Fort Ontario, N. Y., and *to Hot Springs, Ark.,* for observation and treatment.

Major WILLIAM H. TEFFT, *to president of examining board, Fort Riley,* for examination for promotion, from Fort Riley.

Major WILLIAM L. HART, *to Baltimore, Md.,* to inspect the Maryland State Hospital Train, and on completion to return to his proper station.

ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

Alabama

To Annapolis Junction, Md., from Camp Wheeler, Lieut. WILLIAM M. PIERCE, Tuscumbia.

To Camp Beauregard, as a member of board for special examination of command for tuberculosis, Lieut. FLOYD L. ABERNETHY, Flomaton.

To Fort Logan H. Roots, Ark., for duty, from Fort Oglethorpe, Lieut. CLAUDE C. McLEAN, Birmingham.

To Fort Oglethorpe, for duty, from Camp McClellan, Lieut. WILLIAM W. BURNS, Selma.

To Fort Riley, Kan., for instruction, Lieut. DUKE C. BRADFORD, Birmingham.

To New York City, Neurological Institute, for intensive training in brain surgery, from Camp Greenleaf, Lieut. FRANCIS M. INGE, Mobile.

To Springfield, Mass., for duty, from Fort Benjamin Harrison, Lieut. HENRY BOXER, Birmingham.

Arkansas

To Camp Dodge, for examination of command for tuberculosis, from Fort Benjamin Harrison, Capt. PERRY C. WILLIAMS, Texarkana.

To Camp Joseph E. Johnston, for duty, from Fort Oglethorpe, Lieut. ERTON E. POYNOR, Green Forest.

To Fort Oglethorpe, for duty with Evacuation Hospital, No. 5, Lieut. MAHLON D. OGDEN, Little Rock.

To Fort Riley, Kan., for instruction, Lieut. CAP J. CARTER, Sherrill.

To Washington, D. C., Government Hospital for the Insane, for special training, from Surgeon-General's office, Capt. EDWIN P. BLEDSOE, Little Rock.

To his home and honorably discharged on account of being physically disqualified for active service from Camp Greenleaf, Lieut. TRUE S. BURGESS, Russellville.

California

To Camp Doniphan, base hospital, from Jefferson Barracks, Capt. CARO W. LIPMAN, San Francisco.

To Camp Fremont, Palo Alto, Calif., Base Hospital No. 47, Capt. HAROLD SIDEBOTHAM, Santa Barbara.

To Camp Lewis, Tacoma, Wash., for duty, Lieut. FREDERICK A. COLLER, Los Angeles.

To San Francisco, Calif., for duty examining troops for tuberculosis, from Camp Kearney, Capts. JOSEPH A. PARKE, San Diego; WILLIAM R. P. CLARK, JAMES L. WHITNEY, San Francisco.

To New York City, Neurological Institute, for intensive training in brain surgery, from Camp Lewis, American Lake, Wash., Major ALANSON WEEKS, San Francisco.

Canal Zone

To Army Medical School, Washington, D. C., for instruction, Lieut. WILLIAM B. FOSTER, Jr., Ancon.

Colorado

To Boston, Mass., for duty, from Camp Lewis, American Lake, Wash., Major WALTER A. JAYNE, Denver.

To Camp Sherman, as member of board for special examination of command for tuberculosis, from Fort Benjamin Harrison, Lieut. ORION A. GRANTHAM, Johnstown.

To his home and the inactive list of the Medical Reserve Corps, Lieut. JAMES R. ARNEILL, Denver.

Connecticut

To Camp Sherman, as member of board for special examination of command for tuberculosis, from Fort Benjamin Harrison, Lieut. EDWIN S. BENNETT, New Canaan.

To Newport News, for duty, Lieut. LLOYD L. NAURER, New Haven.

To New York City, Neurological Institute, for intensive training in brain surgery, from Camp Upton, Major WILLIAM F. VERDI, New Haven.

District of Columbia

To Camp Jackson, base hospital, Lieut. HENRY MAYES, Washington.

To Fort Myer, Va., for duty with the Twelfth Field Artillery, Major CHARLES L. G. ANDERSON, Washington.

To Fort Riley, for duty with Evacuation Hospital No. 7, from Fort Oglethorpe, Capt. THOMAS W. O'REILLY, Washington.

Florida

To Camp Hancock, base hospital, from Camp Greenleaf, Lieut. ROBERT E. BALDWIN, Tampa.

To Fort Oglethorpe, for duty, from Camp Wheeler, Lieut. HENDLY F. HORNE, Jacksonville.

To Fort Riley, for duty, from Fort Des Moines, Capt. MORETON H. AXLINE, St. Petersburg; Lieut. CHARLES L. KENNON, Jacksonville.

To Tenafly, N. J., base hospital, from Camp Wheeler, Lieut. WILLIAM H. G. MacKAY, Jacksonville.

To Washington, D. C., American University, for duty, from Camp Greenleaf, Capt. FREDERICK C. MOOR, Tallahassee.

To the inactive list on account of being physically disqualified for active service, from Fort Oglethorpe, Lieut. HEBER P. NEWMAN, Bartam.

Georgia

To Atlanta, Ga., dept. laboratory, from Rockefeller Institute, Lieut. ALLEN H. BUNCE, Atlanta.

To Camp Gordon, base hospital, from Camp Wheeler, Lieut. FRED B. RAWLINGS, Sandersville.

To Fort Oglethorpe, for duty, from Walter Reed General Hospital, Capt. THOMAS C. DAVISON, Atlanta; from Camp Wheeler, Lieut. JOHN TERRELL, Jr., Canon; from Chickamauga Park, Lieut. EGBERT M. TOWNSEND, Tilton.

To Fort Porter, N. Y., United States Army General Hospital No. 4, for duty with Hospital Unit "A", Lieut. WALTER E. HOLMES, Jr., Macon.

To New York City, Post-Graduate Medical School and Hospital for instruction in urology and dermatology, Capt. JOHN M. SIGMAN, Macon.

To Rockefeller Institute, for instruction, and on completion of this course to return to his proper station, from Fort Oglethorpe, Capt. GEORGE A. TRAYLOR, Augusta, and on completion of this course to Atlanta, Ga.; dept. laboratory, Lieut. ALLEN H. BUNCE, Atlanta.

To be honorably discharged on account of being physically disqualified for active service, from Fort Des Moines, Lieut. GEORGE W. P. JOHNSON, Savannah.

Idaho

To Camp Funston, for duty, from Fort Riley, Lieut. ROBERT S. KNEESHAW, St. Maries.

To Fort Omaha, Neb., United States Army Balloon School, for duty, Capt. FRANCIS H. POOLE, Pocatello.

Illinois

To Army Medical School, Washington, for duty, Lieut. CARL W. CLARK, Chicago.

To Boston, Mass., for instruction in orthopedic surgery, from Camp Grant, Lieut. CLARENCE A. JACOBSON, Chicago, from Fort Oglethorpe, Lieut. TORRANCE REED, Chicago.

To Camp American University, for duty, from Fort Benjamin Harrison, Lieut. FREDERICK E. ROBERG, Joliet.

To Camp Bowie, base hospital, from Rockefeller Institute, Capt. FREDERICK LUDWIG, Great Lakes.

To Camp Dodge, for duty, from Fort Riley, Lieuts. CHARLES A. CIBELIUS, FREDERICK G. TEST, Chicago; for examination of command for tuberculosis, from Fort Benjamin Harrison, Lieut. TIMOTHY C. WEBER, West Salem.

To Camp Doniphan, base hospital, from Fort Riley, Lieut. JOHN M. KRASA, Chicago.

To Camp Funston, for duty, from Fort Riley, Capt. WILFRED H. GARDNER, Bloomington; for examination of command for tuberculosis, from Fort Benjamin Harrison, Capt. CHARLES H. POWELL, Old Ripley; Lieut. CLARENCE W. CHAPIN, Weldon.

To Camp Grant, base hospital, from Fort Benjamin Harrison, Lieuts. BENJAMIN F. ZOBRIST, Camargo; LORAN E. ORR, Petersburg; as member of board for examination of command for tuberculosis, from Camp Bowie, Lieut. ROBERT S. BERGHOFF, Chicago.

To Camp Greene, for duty, from Fort Benjamin Harrison, Lieuts. HERBERT G. HEMPLER, Creal Springs; RALPH E. POTTER, Loraine; for duty from Fort Morgan, Lieut. FREDERICK T. RICE, Chicago.

To Camp Lee, for duty, from Fort Oglethorpe, Lieuts. HULITT J. WYCKOFF, Chicago; from Philadelphia General Hospital, WILSON K. DYER, Kankakee.

To Camp Logan, base hospital, from Fort Benjamin Harrison, Lieut. ARTHUR B. CONNOR, Wheaton.

To Camp McArthur, base hospital, Lieut. EUGENE Y. YOUNG, Mansfield.

To Camp McClellan, for temporary duty, from Evans Dental Institute, Philadelphia, Pa., Lieut. WILLIAM H. MALEY, Galesburg.

To Camp Pike, Little Rock, base hospital, from Fort Benjamin Harrison, Lieut. ROBERT B. MILLER, Rock Island.

To Camp Sherman, for temporary duty from Evans Dental Institute, Philadelphia, Pa., Lieut. RALPH E. KLECKNER, Mattoon.

To Camp Taylor, for examination of command for tuberculosis, from Fort Benjamin Harrison, Lieut. WILLIAM S. NEEDHAM, Hanna City.

To Camp Upton, base hospital, from Fort Benjamin Harrison, Lieut. CLYDE F. BACCUS, Woodstock.

To Chicago, Ill., for instruction and on completion to return to Fort Sheridan for duty, from Fort Sheridan, Lieut. WILLIAM A. CLARK, Chicago.

To Fort Oglethorpe, for duty, from Camp Dix, Lieut. EVERETT P. COLEMAN, Canton.

To Fort Riley, for instruction, Lieut. ROBERT S. WISHARD, Wheeler; for duty, from Fort Des Moines, Lieut. LEE C. GATEWOOD, Chicago; for duty with Evacuation Hospital No. 7, from Plattsburg Barracks, Lieut. JAMES H. VETTER, Chicago; from Washington University, St. Louis, Mo., Lieut. EDWIN W. HIRSCH, Chicago.

To New York City, Neurological Institute, for intensive training in brain surgery, from Camp Pike, Capt. WILLIAM FULLER, Chicago.

To Portland, Ore., for instructions and assignment to squadrons now being organized, from Fort Worth, Tex., Lieut. JOEL E. TOOTHAKER, Ladd.

To Richmond, Va., for duty, from Fort Benjamin Harrison, Lieut. RALPH R. TRUEBLOOD, Lawrenceville.

To Rochester, Minn., for instruction and on completion of course to Camp Beauregard, from Fort Benjamin Harrison, Lieut. THOMAS B. KELLY, Du Quoin; on completion to Camp McClellan, Lieut. WILLIAM L. MENG, Belleville; on completion to Camp Sherman, Lieut. RAYMOND M. Kelly, Chicago; on completion to Fort Sheridan, Lieut. LUTHER B. HIGHSMITH, Flat Rock.

To Rockefeller Institute, for instruction and on completion of course to Roosevelt Hospital, for a further course of instruction, and on completion of course to Fort Logan for temporary duty, from Fort Benjamin Harrison, Capt. VERNON C. DAVID, Chicago.

To his home and honorably discharged on account of being physically disqualified for active service, Lieut. EDWARD E. EDMONDSON, Mt. Vernon; from Fort Benjamin Harrison, Lieut. EARL R. COCHRAN, Rockton.

Indiana

To Camp Dodge, for duty, from Fort Benjamin Harrison, Capt. HARRY B. WILLIAMS, Mace.

To Camp Grant, base hospital, from Fort Benjamin Harrison, Lieut. WARREN W. HEWINS, Evansville.

To Camp Lee, for duty, from Philadelphia, Pa., Capt. ALFRED P. ROOPE, Columbus.

To Camp Meade, for duty, from Fort Benjamin Harrison, Lieut. JAMES O. RHEA, Linden.

To Camp Shelby, for duty, Lieut. IVAN E. BRENNER, Winchester.

To Camp Sheridan, for duty, from Camp Pike, Capt. Allen Hamilton, Fort Wayne.

To Camp Sheridan, as member of board for examination of command for tuberculosis, from Fort Benjamin Harrison, Lieut. AMZI W. HON, Indianapolis.

To Camp Travis, for duty, Lieut. GEORGE L. MARSHALL, Bourbon.

To Camp Wheeler, for duty, from Fort Benjamin Harrison, Capt. JAMES W. DUCKWORTH, Indianapolis; Lieut. JOHN W. PAHMEIER, Indian Springs.

To Fort Oglethorpe, for duty, from Camp American University, Lieuts. LLOYD A. ELLIOT, Elkhart; from Fort McClellan, Lieut. ELMER C. SINGER, Fort Wayne.

To Fort Omaha, Neb., for duty with balloon squadrons for overseas, from Fort Benjamin Harrison, Lieuts. FREDERICK L. DARROW, East Haven; CHARLES R. ELFERS, New Augusta.

To Honolulu, Hawaii, for duty, from Fort Benjamin Harrison, Lieuts. JAMES H. JOHNSON, Connersville; EUPY K. SCHURTZ, Waterloo.

To New York City, Neurological Institute, for intensive training in brain surgery, Capt. THOMAS M. JONES, Anderson; to Post Graduate Hospital for instruction in urology and dermatology, Lieut. ASHTON M. BALDWIN, Marion.

To Portland, Ore., for instructions and assignment to squadrons now being organized from Fort Worth, Tex., Lieut. CARLOS C. ROZELLE, LeGrange.

To Rochester, Minn., for instruction and on completion of course, to Camp Sevier, Lieut. LLOYD H. SIMMONS, Millersburg.

To Tenafly, N. J., for duty in Ice Plant Company, No. 301, from Fort Benjamin Harrison, Lieut. CHARLES W. ASHLEY, Bicknell.

Honorably discharged on account of being physically disqualified for active service, Major ORANGE G. PFAFF, Indianapolis.

Honorably discharged from Camp Custer, Lieut. GARLAND D. SCOTT, Sullivan.

Iowa

To Boston, Mass., for orthopedic instruction, from Camp Greenleaf, Lieut. GARNETT S. FELT, New Providence; from Fort Snelling, Lieut. EDWARD S. PARKER, Idagrove.

To Camp Custer, base hospital, from Fort Benjamin Harrison, Lieut. WILLIAM H. BETTS, Madrid.

To Camp Dodge, Des Moines, Ia., for duty, from Fort Des Moines, Capt. HANS HANSEN, Logan.

To Camp Sherman, Chillicothe, Ohio, Eighty-Third Division as member of board for examination of command for tuberculosis, from Camp Greenleaf, Lieut. HARRY C. NICHOLS, Carson.

To Camp Upton, Yaphank, L. I., N. Y., for temporary duty, base hospital, Lieut. HAROLD L. BRERETON, Emmetsburg.

To Fort Logan H. Roots, Ark., for duty, from Fort Benjamin Harrison, Lieut. ORSON A. KELLOGG, Dows.

To Fort Riley, Kan., for instruction, from Camp Dodge, Capt. JAMES J. DALY, Decorah.

To New York City, from Philadelphia, for duty in connection with the physical examining unit, and on completion to proper station, Major SUGEN R. LEWIS, Dubuque.

To New York City, Neurological Institute, for intensive training in brain surgery, Capt. HENRY A. GRAY, Keokuk; from Fort Riley, Lieut. FREDERICK W. SALLANDER, Fort Madison; to report to the chief surgeon, aviation section, for temporary duty, and on completion to Garden City, L. I., from Fort Benjamin Harrison, Lieut. VICTOR E. BOLLINGER, Mt. Pleasant.

To his home and the inactive list on account of being physically disqualified for active service, from Camp Dodge, Lieut. ROBERT C. MOLISON, Marshalltown.

Kansas

To Camp Devens, Ayer, Mass., for temporary duty, from Evans Dental Institute, Philadelphia, Lieut. IVAN R. BURKET, Winfield.

To Camp Jackson, Eighty-First Division, Columbia, S. C., for duty, from Fort Riley, Kan., Major JOHN E. HEWITT, Wakefield.

To Camp Mills, Garden City, L. I., N. Y., from Gas Defense School, Fort Sill, Okla., Capt. GEORGE W. LEE, Yates Center.

To Fort Riley, Kan., base hospital, for duty, from Medical Officers Training Camp, Fort Riley, Lieut. CHARLES V. HAGGMAN, Scandia.

To New York City, Cornell Medical College, for instruction in military roentgenology, Lieut. GEORGE E. KNAPPENBERGER, Mankato.

To Rock Island, for duty, from Fort Riley, Lieut. RALPH C. HENDERSON, Erie.

To his home and the inactive list on account of being physically disqualified for active service, Lieut. JAMES B. DONNELL, Kinsley.

Kentucky

To Camp Lee, Petersburg, Va., base hospital, from Camp Greenleaf, Lieut. JAMES M. TAULBEE, Lexington.

To Camp Meade, Annapolis Junction, Md., for duty, from Camp Meade, Lieut. MORTON M. MOSS, Bowling Green.

To Camp Shelby, Hattiesburg, Miss., for duty, from Camp Wheeler, Lieut. JOHN P. WHEELER, Carrollton.

To Camp Sheridan, Ala., for temporary duty, from Evans Dental Institute, Philadelphia, Lieut. FREDERICK L. KOONTZ, Louisville.

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Benjamin Harrison, Lieut. HENRY H. DUKE, Louisville.

To Camp Taylor, Louisville, Ky., as member of board for examination of command for tuberculosis, from Fort Benjamin Harrison, Lieut. EDWIN W. MONTGOMERY, Vince Grove.

To Fort Oglethorpe, for duty, from Camp Wheeler, Lieut. JOHN P. WHEELER, Carrollton.

To Fort Ontario, N. Y., for duty with Field Hospital No. 28, from Camp Devens, Lieut. ARTHUR W. ALLEN, Somerset.

To Honolulu, Hawaii, for duty, from Gas Defense School, Fort Sill, Okla., Capt. SAM F. PARKER, Somerset.

To Morrison, Va., for duty, from Fort Benjamin Harrison, Lieut. UREY G. DAVIS, Hopkinsville.

To New York City, Neurological Institute, for intensive training in brain surgery, Capt. CHARLES FARMER, Louisville.

To Rochester, Minn., for instruction and on completion of course to Fort Oglethorpe, base hospital, from Fort Benjamin Harrison, Lieut. CLIFFORD E. HARKEY, Paducah.

Louisiana

To Camp Beauregard, Alexandria, La., for duty, from Camp Wheeler, Lieuts. WILLIAM T. McNEESE, Angie; Lieut. FREDERICK L. FENNO, New Orleans, as member of board for examination of command for tuberculosis, Lieut. GEORGE H. UPTON, New Orleans.

To Camp Upton, Yaphank, L. I., N. Y., base hospital, from Rockefeller Institute, Lieut. PAUL K. RAND, Alexandria.

To Fort Leavenworth, Kan., for duty, from Camp Wheeler, Lieut. WILEY R. BUFFINGTON, New Orleans.

To Fort Riley, Kan., for duty with Evacuation Hospital No. 7, from Fort Oglethorpe, Lieuts. DOLLIE O. SHERMAN, Clarke; ROBERT P. McGOWAN, New Orleans.

To New York City, Neurological Institute, for training in brain surgery, Capt. WILLIAM M. PERKINS, New Orleans.

Maine

To Boston, Mass., for instruction in orthopedic surgery, from Camp Upton, Lieut. RAYMOND V. N. BLISS, Bangor.

To Camp Sherman, Chillicothe, Ohio, as member of board for examination of command for tuberculosis, from Fort Benjamin Harrison, Lieut. SUMNER C. PATTEE, Searsport.

To Fort McPherson, Ga., base hospital, from Fort Benjamin Harrison, Lieut. CHARLES D. McDONALD, Portland.

To Fort Oglethorpe, for duty, from Camp Devens, Major WILLIAM L. COUSINS, Portland.

To Rockefeller Institute, for instruction, and on completion of course to United States Army General Hospital No. 1, for temporary duty, Lieut. ROYCE V. JOSSELYN, Portland.

Maryland

To Army Medical Museum in connection with supplying illustrations for lecture work, Major ROBERT T. TAYLOR, Baltimore.

To Camp Greene, Charlotte, N. C., base hospital, from Camp Wheeler, Lieut. ALEXANDER McC. STEVENS, Easton.

To Camp Lee, Petersburg, Va., base hospital, from Fort Myer, Lieut. HENRY L. SMITH, Baltimore.

To Camp McClellan, Anniston, Ala., for duty, from Fort Oglethorpe, Lieut. FRANK B. HINES, Chestertown.

To Camp Meade, Annapolis Junction, Md., base hospital, Lieut. HOWARD H. WARNER, Baltimore.

To Camp Sherman, Chillicothe Ohio, base hospital, from Fort Des Moines, Major FRANK MARTIN, Baltimore.

To Fort McHenry, Md., for duty in the United States Army General Hospital No. 2, from Rockefeller Institute, Lieut. JOHN F. LUTZ, Baltimore.

To Fort Oglethorpe, Ga., for instruction, Lieut. FRANK L. JENNINGS, Baltimore.

To Fort Porter, N. Y., for duty, from St. Elizabeth's Hospital, Washington, D. C., Capt. DANIEL C. V. STUART, Jr., Baltimore.

To Fort Riley, Kan., for duty with Evacuation Hospital No. 7, from Camp Sheridan, Major DON P. PETERS, Baltimore.

To New York City, Neurological Institute, for training in brain surgery, from Fort Oglethorpe, Lieut. GEORGE W. BISHOP, Govaris.

To Rockefeller Institute, for instruction, from Fort Oglethorpe, Lieut. CLAUDE D. HAMILTON, Sykesville.

To Walter Reed General Hospital, Takoma Park, D. C., for instruction in tuberculosis examinations, Lieuts. ISRAEL J. FEINGLES, Baltimore; SAMUEL NEWMAN, Baltimore.

To his home and the inactive list on account of being physically disqualified for active service, from Hoboken, N. J., Lieut. JAMES A. ETHERIDGE, Baltimore.

To his home and honorably discharged on account of being physically disqualified for active service, from Camp Sevier, Greenville, S. C., Lieut. GEORGE McLEAN, Baltimore.

Massachusetts

To Army Medical School, for duty, Lieut. WILLIAM F. GREANEY, Holyoke.

To Boston, Mass, for duty from Fort Benjamin Harrison, Major WILLIAM COGSWELL, Haverhill; *to Boston City Hospital* for instruction and on .completion to Camp Meade, base hospital, Capt. GEORGE C. PARCHER, Sangus Center; for instruction and on completion to Camp Devens, base hospital, Lieut. DAVID D. SCANNELL, Boston.

To Camp Devens, for duty as president of the tuberculosis board, Major JOSEPH H. PRATT, Boston; for duty, Lieut. ANDREW NICHOLS, Boston.

To Camp Dodge, for examination of command for tuberculosis, Lieut. ROGER W. SCHOFIELD, Worcester.

To Camp Gordon, Atlanta, Ga., as member of board for examination of command for tuberculosis, from Walter Reed General Hospital, Capt. FRANCIS R. BURKE, Quincy.

To Chickamauga Park, Ga., for duty with the 110th cavalry, from Camp Devens, Lieut. ABRAHAM K. YOOSUF, Worcester .

To Fort Oglethorpe, Ga., base hospital, from Fort Benjamin Harrison, Capt. PEER P. JOHNSON, Beverly; from Camp Devens, Capt. ISAAC S. F. DODD, Pittsfield; Lieut. ROBERT L. JONES, Lowell; from Fort Banks, Lieut. WALTER M. GRANDALL, Lawrence.

To Fort Sam Houston, Texas, for duty in the department laboratory, from Rockefeller Institute, Lieut. GEORGE H. BIGELOW, Boston.

To Camp Travis, Fort Sam Houston, Tex., base hospital, Lieut. DAVID M. HASSMAN, Boston.

To New York City, Post-Graduate Hospital, for instruction in urology and dermatology, Lieuts. OSCAR F. COX, Jr., JAMES H. GETTINGS, Boston; *to Rockefeller Institute*, for instruction in laboratory work, Lieut. DAVID L. BELDING, Boston.

To be honorably discharged, Capt. CADIE PHIPPS, Boston.

To the inactive list from Evans Dental School, Philadelphia, Capt. RALPH C. WIGGIN, Cambridge.

Michigan

To Camp Alfred Vale, Little Silver, N. J., for duty, from Fort Benjamin Harrison, Lieut. JOSEPH L. DES ROSIERS, Detroit.

To Camp Beauregard, Alexandria, La., base hospital, Lieut. JACK R. BOLASNY, Detroit.

To Camp Custer, Battle Creek, Mich., for temporary duty, from Evans Dental Institute, Capt. RALPH E. BALCH, Kalamazoo.

To Camp Dodge, for examination of command for tuberculosis, from Fort Benjamin Harrison, Lieut. WILBUR A. GRIFFITH, Coldwater.

To Camp Gordon, Altanta, Ga., for temporary duty, from Evans Dental Institute, Philadelphia, Lieut BERNHARD FRIEDLAENDER, Saginaw.

To Camp McClellan, Anniston, Ala., for duty, from Philadelphia General Hospital, Lieut. ARTHUR R. TEMME, Detroit.

To Fort Oglethorpe, Ga., for duty, from Fort Benjamin Harrison, Lieut. FREDERICK S. BAIRD, Bay City.

To Fort Omaha, Neb., for duty, from Fort Benjamin Harrison, Lieut. WAYNE R. BEARDSLEY, Jones.

To Fort Riley, Kan., for duty, from Fort Des Moines, Iowa, Capt. WARREN P. MORRILL, Benton Harbor; from Fort Riley, Lieut. EDWARD P. WAID, Salem; for duty with Evacuation Hospital No. 7, from Fort Benjamin Harrison, Lieut. ALBERT V. BRADEN, Ishpeming.

To Fort Sheridan, Ill., for temporary duty, from Fort Benjamin Harrison, Lieut. JAMES RHINES, Laurium.

To Mineola, L. I., N. Y., Hazelhurst Field, for duty, from Syracuse, N. Y., Lieut. WARD F. SEELEY, Detroit.

To Rochester, Minn., for instruction, and on completion to Camp Green, base hospital, from Fort Benjamin Harrison, Lieut. KENDALL B. REES, Bedford.

Minnesota

To Camp Bowie, Fort Worth, Tex., base hospital, Lieut. ALEXANDER JOSEWICH, Minneapolis.

To Fort Logan H. Roots, Ark., for duty, from Fort Screvon, Ga., Lieut. JOHN H. SCHROEDER, Minneapolis; from Fort Riley, Lieut. JOHN B. CLAIR, Winsted.

To Fort Oglethorpe, Ga., for duty, from Fort Sheridan, Lieut. GEORGE D. RICE, St. Cloud.

To Fort Riley, Kan., for duty, from Camp Funston, Lieut. HENRY E. DOUGLAS, Hutchinson.

To New York City, Cornell Medical College, for instruction in military roentgenology, Lieut. DOUGLAS F. ROBBINS, Minneapolis.

To Portland, Ore., for instructions and assignment to squadrons now being organized, from Fort Worth, Tex., Capt. JOHN C. STALEY, St. Paul.

To Rochester, Minn., for instruction, and on completion of course to Camp Dodge, base hospital, Lieut. ERWIN C. FITZ, Truman.

Mississippi

To Camp Meade, Annapolis Junction, Md., from Camp Wheeler, Lieut. TIMOTHY D. WELCH, Ellisville.

To Fort Leavenworth, Kan., for duty, from Camp Wheeler, Lieut. EUGENE R. SHURLEY, Stover.

To Fort Oglethorpe, for duty, from Camp Wheeler, Lieut. ARMON F. WICKS, Okolona.

Missouri

To Camp Funston, Fort Riley, Kan., for examination of command for tuberculosis, from Fort Benjamin Harrison, Capt. EDWARD H. JOHNSON, St. Louis.

To Camp MacArthur, base hospital, from Fort Riley, Lieut. JOHN H. ARMSTRONG, St. Louis.

To Camp McClellan, Anniston, Ala., for duty, from Phipps Clinics, Baltimore, Lieut. CHARLES H. BURDICK, St. Louis.

To Camp Sherman, Chillicothe, Ohio, base hospital, from Fort Benjamin Harrison, Lieut. FRANK M. SHAFER, Osburn.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Philadelphia General Hospital, Lieut. JAMES LEWALD, St. Louis.

To Fort Oglethorpe, Ga., for duty, from Mineola, Lieut. CLYDE O. BROWN, St. Louis.

To Fort Riley, Kan., base hospital, from Rockefeller Institute, Lieut. PAUL M. KRALL, Kansas City.

To Pittsburgh, for instruction in military roentgenology, from Fort Logan H. Roots, Ark., Lieut. JAMES E. DEWEY, Springfield.

Montana

To Fort Riley, Kan., for instruction, Lieut. GEORGE E. LOW, Round Up; for duty with Evacuation Hospital No. 7, from Fort Oglethorpe, Lieut. HOUSTON H. PARSONS, Sidney.

Nebraska

To Camp Funston, Fort Riley, Kan., for duty, from Fort Riley, Lieut. CLARENCE MOLSEED, Omaha; JESSE C. PAINTER, Schuyler.

To Fort Omaha, Neb., aviation section, signal school, for duty, Lieut. FRANK W. SCOTT, Lodgepole.

To Rock Island, for duty, from Fort Riley, Lieut. ELBER E. CONE, Oxford.

New Hampshire

To Camp McClellan, Anniston, Ala., base hospital, from Fort Benjamin Harrison, Lieut. WILLIAM C. E. NOBLES, Littleton.

To Camp Sherman, Chillicothe, Ohio, as member of board for examination of command for tuberculosis, from Fort Benjamin Harrison, Lieut. FRANK B. FOSTER, Peterboro.

To Fort Clarke, Texas, for duty with the sanitary train, from Fort Benjamin Harrison, Major GEORGE V. FISKE, Manchester.

To Fort Logan H. Roots, for duty in the United States Army General Hospital, from Camp Beauregard, Capt. GEORGE M. WATSON, Manchester.

To Garden City, L. I., camp hospital, Capt. CHARLES A. LAMSON, New London.

New Jersey

To Camp Dix, Wrightstown, N. J., for duty, from Fort Benjamin Harrison, Capt. ANDREW F. McBRIDE, Paterson; Lieut. LANCELET ELY, Somerville.

To Camp Funston, Fort Riley Kan., for examination of command for tuberculosis, from Fort Benjamin Harrison, Lieut. CHARLES ENGLANDER, Cedar Grove.

To Camp Greenleaf, Fort Oglethorpe, Ga., for duty with Evacuation Hospital No. 6, from Camp Sevier, Lieut. GEORGE BLACKBURNE, Newark.

To Camp Lee, Petersburg, Va., as member of board for examination of command for tuberculosis, Capt. MAURICE ASHER, Newark.

To Camp McClellan, Anniston, Ala., for duty, from Camp Wheeler, Lieut. WILLIAM JAMES, German Valley.

To Camp Meade, Annapolis Junction, Md., for duty, from Neurological Institute, N. Y., Lieut. JAMES P. SANDS, Trenton.

To Camp Sherman, Chillicothe, Ohio, base hospital, from Fort Benjamin Harrison, Lieut. NATHAN FURST, Newark.

To Fort Logan H. Roots, Ark., for duty in hospital, from Fort Benjamin Harrison, Lieuts. EDMUND W. ILL, Newark; JAMES G. DONNELLY, Paterson.

To Fort McPherson, Ga., for duty, Lieut. PHILIP E. BRUNDAGE, Grantwood.

To Fort Oglethorpe, for duty, from Fort Wadsworth, Lieut. GEORGE W. VANNATTA, East Orange; from Camp Wheeler, Lieut. ARTHUR H. TEMPLE, Passaic.

To Chicago, Ill., University of Chicago, for a two weeks' course of instruction in the treatment of pneumonia, and on completion to his proper position, from Camp Sherman, Lieut. HAROLD I. GOSLINE, Trenton.

To Honolulu, Hawaii, for duty, from Gas Defensê School, Fort Sill, Okla., Lieut. IRVING E. CHARLESWORTH, Bridgeton.

To New York City, Neurologic Institute, for training in brain surgery, *from* Camp Greenleaf, Lieut. AARON G. BALDWIN, Newark; *to New York Post Graduate Hospital* for instruction in urology and dermatology, Lieut. CHARLES P. LINGLE, Arlington.

To Philadelphia, Pa., University Hospital, for instruction, and on completion to his proper station, from Camp Greene, Lieut. ADOLPH VON P. FARDELMANN, *Jersey City.*

To Rochester, Minn., for instruction, and on completion to Camp Hancock, base hospital, from Fort Benjamin Harrison, Lieut. HENRY G. SMITH, Cedar Grove.

To his home and honorably discharged on account of his inaptitude for the service, Capt. CARL N. WINTSCH, Newark.

To his home and the inactive list on account of being physically disqualified for active service, from Fort *Des Moines,* Lieut. *JAMES* R. Stroud, Jersey City.

New Mexico

To Camp Cody, N. M., for duty, Capt. EARL S. BULLOCK, Lieut. ERNEST A. DUNCAN, Silver City.

New York

To Army Medical School, Washington, D. C., for *duty in the* bacteriological laboratory, from Rockefeller Institute, *Lieut. HARRY* C. SCHMEISSER, New York City.

To Boston, Boston City Hospital, for instruction and *on completion* to United States Army General Hospital No. 1, New York City, for duty in the base hospital, from Fort Ayer, *Lieut.* WATSON A. LAWRENCE, *Valhalla; on completion* of the course at Boston City Hospital, *to United States Army General Hospital No. 1,* Williamsbridge, N. Y., for temporary duty, *Lieut* JOSEPH L. McGOLDRICK, Brooklyn; for duty from Camp Upton, Lieut. GESSEL WOLF, New York City.

To Camp Bowie, Fort Worth, Tex., base hospital, from Camp Greenleaf, Capt. WILLIAM R. MAY, New York City.

To Camp Devens, Ayer, Mass., as member of board for examination for tuberculosis, from Camp Bowie, Lieut. *HERMAN JUDKOWITZ,* Brooklyn.

To Camp Dix, for duty, from Fort Benjamin Harrison, Lieut. HAMILTON M. SOUTHWORTH, Old Chatham.

To Camp Dodge, Iowa, base hospital, from Fort Benjamin Harrison, Lieut. SAMUEL TOPKINS; for examination of command for tuberculosis, from Fort Benjamin Harrison, Lieut. OSCAR S. ESSENSON, New York City.

To Camp Doniphan, Fort Sill, Okla., base hospital, from Fort Oglethorpe, Lieut. WEBB W. WEEKS, *New York City.*

To Camp Funston, Fort Riley, Kan., for examination of command for tuberculosis, from Fort Benjamin Harrison, Lieut *EUGENE* CALVELLI, New York City.

To Camp Gordon, Atlanta, Ga., for duty, from Camp Taylor, Lieut. RICHMOND R. HOLT, New York City.

To Camp Grant, Rockford, Ill., as member of board for examination of command for *tuberculosis,* from Fort Benjamin Harrison, Lieut. CYRENIUS A. NEWCOMB, Newark.

To Camp Greene, Charlotte, N. C., for duty, from Vicksburg, Miss., Major JOHN T. SPRAGUE, St. George.

To Camp Jackson, Columbia, S. C., for *duty,* from Philadelphia, Capt. CARL EGGERS; for duty in base hospital, *from* Fort Benjamin Harrison, Lieuts. ROBERT *W. PETTIT,* New York City, GEORGE B. UBEL, Salamanca.

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Fort Oglethorpe, Lieut. NATHAN ROSENTHAL, New York City.

To Camp Lee, Petersburg, Va., as *member* of board for examination of command for tuberculosis, *Capt.* STEPHEN A. MAHADY, Utica. Lieuts. NELSON M. HOLDEN and LOUIS D. STERN, *Brooklyn;* FRANCIS ARGUS, Buffalo.

To Camp Meade, Annapolis Junction, Md., base *hospital, from* Camp Meade, Capt. WALDEMAR T. BROWNE, Brooklyn.

To Camp Merritt, Tenafly, N. J., base hospital, from New York City, Capt. HAROLD L. HUNT, New York City.

To Camp Mills, Garden City, L. I., N. Y., for temporary duty, Major JOSEPH COLLINS, New York City.

To Camps Shelby, Beauregard, *Logan,* Fort Sam Houston, *Camps* Travis, MacArthur, Bowie, Doniphan, Pike, from Camp Jackson, Major RICHARD H. HUTCHINGS, Ogdensburg.

To Camp Sheridan, Montgomery, Ala., base hospital, Capt. A. L. BENEDICT, Buffalo; from Camp Mills, Capt. GEORGE P. COOPERNAIL, Bedford.

To Camp Sherman, Chillicothe, Ohio, as members of board for examination of command for tuberculosis, from Fort Benjamin Harrison, Lieuts. BYRON C. SHULTS, Albany, and HOWARD C. MURPHY, Herkimer; for temporary duty at the base hospital, from Camp Upton, Lieut. ALBERT C. DURAND, Ithaca.

To Camp Upton, Yaphank, L. I., N. Y., for duty, from Benjamin Harrison, Capt. WALTER H. VOSBURG, Dunkirk; for examination of command for tuberculosis, from Walter Reed General Hospital, Capt. JOSEPH R. CULKIN, Rochester.

To Camp Wheeler, Macon, Ga., base hospital, from Fort Oglethorpe, Capt. JAMES F. NAGLE, New York City; for temporary duty, from Philadelphia General Hospital, Lieut. PERCY L. DODGE, Poughkeepsie.

To Cleveland, Ohio, for instruction and on completion to Fort Riley, for temporary duty, from Fort Riley, Capt. NATHANIEL P. BREED, Douglaston.

To Fort Banks, Mass., for duty, from Camp Upton, Lieut. WILLIAM J. WANSBORO, Albany.

To Fort Benjamin Harrison, Ind., base hospital, *Lieut.* WALTER F. MACKLIN, *New York City.*

To Fort Jay, N. Y., for duty, from Camp Upton, Lieut. ALBERT C. MARGULIES, *Brooklyn.*

To Fort Logan H. Roots, Ark., for duty in the United States Army General Hospital, Major BRUCE G. PHILLIPS, New York City; for duty in the hospital, from Fort Benjamin Harrison, Lieuts. WILLIAM C. CAUBLE and JOHN J. MADDEN, Brooklyn.

To Fort Meyer, Va., for duty, from Camp Gordon, Lieut. ABRAHAM I. LOWENTHAL, New York City.

To Fort McPherson, Ga., for duty, from *Fort* Benjamin Harrison, Lieut. JOHN F. HOLDEN, White Plains.

To Fort Niagara, N. Y., for duty as gas instructor, from Fort Sill, Lieut. EDWARD F. GILLICK, Niagara Falls.

To Fort Oglethorpe, Ga., for duty, from Camp Dix, Major HOWARD D. COLLINS, New York City; from Camp *McClellan, Major JOHN* C. A. GERSTER, New York City; from Camp Dix, *Capt.* JAMES W. JAMESON, New York City; *from Fort Andrews,* Capt. SYLVESTER F. O'DAY, *New York City;* from Camp MacArthur, Lieut. JOSEPH *E. RAIA,* New York City; from Fort Jay, Lieut. ALBERT C. MARGULIES, *Brooklyn.* For duty with Evacuation Hospital No. 5, Lieuts. THOMAS J. KIRWIN and ROSCOE C. WEBB, New York City; from Fort Benjamin Harrison, Lieut. HENRY B. SIGLAR, New York City. For duty in Evacuation Hospital No. 6, from Washington University, St. Louis, Lieut. JAMES T. HARRINGTON, Poughkeepsie.

To Fort Riley, Kan., for special duty, and on completion to his proper station, from the office of the Surgeon-General, Capt. GEORGE DRAPER, New York City. For temporary duty from Fort Benjamin Harrison, Lieut. ROY J. MARSHALL, Rome; from Fort Leavenworth, Lieut. DAVID M. KAPLAN, New York City.

To Fort Sam Houston, Texas, for duty, from Fort Benjamin Harrison, Lieut. LOUIS J. SOKOL, New York City.

To Mineola, L. I., Hazelhurst Field, for duty, from Syracuse, N. Y., Lieuts. EARL H. EATON and LAURENT G. FEINIER, New York City.

To New York, N. Y., for duty in connection with the development of special hospitals, and on completion of this duty *to his proper station,* Major THOMAS W. SALMON, Staten Island. For the *purpose* of enlisting the enlisted personnel of *Base Hospital No. 48,* Major WILLIAM T. HOLMUTH, New York City. *Neurological Institute,* for intensive training in brain surgery, Majors MARTIN B. TINKER, Ithaca, and ALEXANDER NICOLL, New York City; and Capts. GEORGE A. PECK, New Rochelle, and GEORGE S. BRITTEN, Syracuse. For duty as *instructor in* orthopedic work, from Camp Upton, Capt. BRAINERD H. WHITBECK, Brownville. *Roosevelt Hospital,* for instruction, and on completion *to Fort Riley* for duty in Evacuation Hospital, No. 7, Capt. ARCHER D. BABCOCK, Syracuse. *Bellevue Hospital,* for instruction, and on completion *to Fort Slocum* for temporary duty, from Fort Slocum, Lieut. PERCY H. WILLIAMS, New York City; on completion of course at *Bellevue Hospital, to U. S. Army General Hospital,* for duty, Lieut. ARMSTRONG C. PRATT, New York City; on completion of the course at *Bellevue Hospital,* to *Walter Reed General Hospital,* for duty, Lieut. MAURICE D. BARNETTE, Watertown. For instruction in laboratory work, from Camp Greenleaf, Lieut. ROBERT E. WALSH, New York City. For duty with the *First Depot Battalion,* Lieut. DONALD M. GILDERSLEEVE, Brooklyn.

To Plattsburg Barracks, for duty in connection with the examination of candidates for aviation, from Toronto, Canada, Capt. WILLIAM W. LAING, Brooklyn. For temporary duty, and on completion, *to his proper station,* Capt. GEORGE F. COTT, Buffalo. For duty, and on completion *to his home* and the inactive list, Lieut. EDWARD F. MFISTER, Buffalo.

To Rochester, Minn., for instruction, and on completion of this course *to Camp Gordon,* Lieut. FRANK A. WALDER, Lockport. On completion of the course at Rochester, *to Camp Hancock,* base hospital, from Fort Benjamin Harrison, Lieut. PAUL M. PARKER, Rochester; *to Camp Lee,* Lieut. MILLARD F. SHAFER, Cobleskill; *to Camp Shelby,* Lieut. LEROY D. SOPER, Smyrna; *to Camp Taylor,* base hospital, Lieut. PHILIP GORDON, Rochester; to Fort Snelling, from Fort Benjamin Harrison, Lieut. NORMAN P. BENTLEY, Cape Vincent.

To Rockefeller Institute, N. Y., for instruction, from Fort Oglethorpe, Lieut. NOLAN E. LEAKE, New York City. For instruction *in laboratory* work, and on completion *to Base Hospital No. 3, First N. Y. Field Hospital Armory,* for duty, Lieut. BERNARD S. DENZER, New York City.

To Washington, D. C., for duty in the office of the Surgeon-General, Capt. CYRUS B. CRAIG, New York City.

To the inactive list from Rockefeller Institute, Major GEORGE BAEHR, New York City.

To his home and the inactive list from Rockefeller Institute, Capt. MORRIS B. BEECROFT, Albany; on account of being physically disqualified for active service, Capt. MALCOLM E. HOUSE, Cuba.

To his home and honorably discharged on account of being physically disqualified for active service, from Fort Benjamin Harrison, Lieut. JAMES H. BLAKENEY, Brooklyn; from Fort Riley, Lieut. SAMUEL W. HOUSTON, Wolcott.

North Carolina

To Annapolis Junction, Md., from Camp Wheeler, Lieuts. NUMA H. CREWS, Henderson, and HECTOR M. PERSON, Saulston.

To Army Medical School, bacteriologic laboratory, from Rockefeller Institute, Lieut. HICKMAN RAY, Raleigh.

To Camp American University, Washington, for duty, from Walter Reed General Hospital, Lieut. JOHN S. McKEE, Raleigh.

To Camp Bowie, Fort Worth, Texas, base hospital, from Camp Greenleaf, Lieut. DARIUS C. ABSHER, Mount Airy.

To Camp Greene, Charlotte, N. C., base hospital, from Fort Oglethorpe, Lieut. CICERO J. ELLEN, Greenville.

To Camp Greenleaf, Fort Oglethorpe, Ga., for instruction, from Camp Jackson, Columbia, S. C., Lieut. RACK F. BENTHALL, Ahoskie.

To Camp Lee, Va., for duty, from Camp Lee, Lieut. BENJAMIN F. CLIFF, East Flat Rock.

To Camp Wadsworth, Spartanburg, S. C., for temporary duty, from Philadelphia General Hospital, Lieut. ADLAI S. OLIVER, Greensboro.

To Fort McPherson, Ga., for duty with Hospital Unit "O" from Fort Oglethorpe, Capt. WILLIAM ALLAN, Charlotte; Lieut. CHARLES I. ALLEN, Wadesboro.

To Fort Morgan, Ala., for duty, from Fort Oglethorpe, Lieut. THOMAS S. McMULLAN, Hertford.

To Fort Oglethorpe, for duty, from Camp Greene, Lieuts. WILLIAM W. GREEN, Tarboro; from Camp Sevier, ROBERT A. MOORE, Charlotte; from Camp Wheeler, CHARLES L. SWINDELL, Wilson; from Richmond Medical School, ROLAND S. CLINTON, Rocky Mountain.

To New York City, Post-Graduate Hospital, instruction in urology and dermatology, Lieut. JOSEPH W. HOOPER, Wilmington.

To Washington Barracks, to examine recruits in his specialty, from Gettysburg, Pa., Lieut. ALBERT DURHAM, Charlotte.

To Washington, D. C., for duty, from American Expeditionary Forces, France, Lieut. EDWARD B. BEASLEY, Fountain.

North Dakota

To Camp Taylor, as member of board for the examination of command for tuberculosis, Lieut. HERBERT B. WENTZ, Verona.

Ohio

To Camp Custer, Battle Creek, Mich., base hospital, from Fort Benjamin Harrison, Lieut. MURRAY B. McGONIGLE, Toledo.

To Camp Dix, Wrightstown, N. J., base hospital, from Rockefeller Institute, Lieut. HAROLD O. RUH, Cleveland.

To Camp Dodge, Des Moines, Iowa, base hospital, from Fort Benjamin Harrison, Lieuts. EDGAR H. JOHNSTON, Alexandria; CARLTON D. POSTLE, Columbus; for examination of command for tuberculosis, WILEY T. SPRAGUE, Athens.

To Camp Funston, Fort Riley, for examination of command for tuberculosis, from Fort Benjamin Harrison, Lieut. MARION WHITACRE, Cincinnati.

To Camp Greenleaf, Fort Oglethorpe, Ga., for instruction, from Camp Wheeler, Capt. SAMUEL HINDMAN, Columbus.

To Camp Hancock, Augusta, Ga., base hospital, from Rockefeller Institute, Lieut. ROY P. FORBES, Cleveland.

To Camp Jackson, Columbia, S. C., base hospital, from Fort Benjamin Harrison, Lieut. RICHARD S. MOYNAN, Columbus.

To Camp Kearney, Linda Vista, Calif., base hospital, from Fort Benjamin Harrison, Lieut. MELVILLE D. SOASH, Westerville.

To Camp MacArthur, Waco, Texas, for duty, from Fort Sill, Capt. ROY K. EVANS, McGuffey.

To Camp Taylor, Louisville, Ky., as member of board for examination of command for tuberculosis, Lieuts. CHARLES B. HAMMA, Springfield; from Fort Benjamin Harrison, ROBERT CLARKE, Cleveland; IRWIN W. MAYBERRY, Scottown.

To Camp Upton, Yaphank, L. I., N. Y., base hospital, from New York Post Graduate Hospital, Lieut. ALVAH S. McLAIN, Lakewood; for duty, from Evans Dental Institute, Philadelphia, Lieut. ARTHUR J. McCRACKEN, Bellefontaine.

To Camp Wheeler, Macon, Ga., for duty, from Fort Benjamin Harrison, Lieut. REEVES W. DeCROW, Sciotoville; from Philadelphia General Hospital, Lieut. HARRY H. McCLELLAN, Dayton.

To Cleveland, Ohio, for instruction, and on completion *to Camp Greene*, base hospital, Capt. HARRY T. MILLER, Springfield; *to Camp McClellan*, base hospital, Lieut. THOMAS H. BROWN, Toledo.

To Fort Oglethorpe, Ga., for duty, from Camp Sherman, Lieuts. GEORGE M. LOGAN, Akron; RALPH B. THOMPSON, Solon.

To Fort Omaha, Neb., for duty, from Fort Benjamin Harrison, Lieut. PAUL F. DAVIDSON, Cleveland.

To Fort Riley, Kan., for instruction, Lieuts. WILLIAM J. TOPMOELLER, Cincinnati; ARTHUR H. HIXSON, Columbus; from Fort Benjamin Harrison, Lieut. EDWARD KUCK, Cincinnati.

To Hot Springs, Ark., for duty in the Army and Navy General Hospital, from Fort Screven, Ga., Lieut. JOHN H. SCHROEDER, Cincinnati.

To Jefferson Barracks, St. Louis, Mo., for duty in his specialty, Lieut. GEORGE H. REEVE, Cleveland.

To New York City, Post-Graduate Hospital, for instruction in urology and dermatology, Lieut. WILLIAM N. TAYLOR, Columbus.

To Rochester, Minn., for instruction, and on completion *to Camp Gordon*, Lieut. JEFFERY J. VEGA, National Military Home; on completion *to Camp Taylor*, Lieut. GALE C. GUTHRIE, Uhrichsville; on completion *to Camp Wadsworth*, Lieut. DONALD DeC. SHIRA, Larue; on completion *to Camp Wheeler*, Lieut. WILLIAM M. SHAPIRO, Toledo.

To his home and honorably discharged on account of being physically disqualified for active service, Major BURT W. WILSON, Youngstown.

To the inactive list, from Evans Dental School, Philadelphia, Lieut. LOUIS H. SCHRIVER, Cincinnati.

Oklahoma

To Atlanta, Ga., Department Laboratory, for duty, from Rockefeller Institute, Lieut. EDWARD B. BROOKS, Shawnee.

To Camp Lee, Petersburg, Va., as member of board for examination of command for tuberculosis, Lieut. LOUIS L. JACOBS, Vivian.

To Fort Riley, Kan., for duty with Evacuation Hospital No. 7, from Camp MacArthur, Lieut. SIMS D. BEVILL, Poteau.

To Camp Sherman, base hospital, Lieut. CHONNER P. CHUMLEY, Washington.

To Philadelphia, for orthopedic instruction, from Camp Alfred Vail, Lieut. WILLIS K. WEST, Oklahoma City.

To report to the commanding general, Southern Division, for assignment to duty, Lieut. MARVIN E. STOUT, Oklahoma City.

Pennsylvania

To Camp Meade, Annapolis, Md., from Camp Wheeler, Lieuts. JACOB J. SCHWEGLER, Kennett Square; FRANK R. WHEELOCK, Scranton.

To Army Medical School, Washington, D. C., for instruction, Lieut. JAMES C. HARDING, Philadelphia; for duty in the bacteriologic laboratory, from Rockefeller Institute, Lieut. JOHN W. GOODSELL, New Kensington.

To Camp Custer, Battle Creek, Mich., base hospital, from Fort Benjamin Harrison, Lieut. FRANK H. KELLY, McKeesport.

To Camp Devens, Ayer, Mass., as member of board for examination of command for tuberculosis, Capt. DANIEL M. HOYT, Philadelphia.

To Camp Funston, Fort Riley, for examination of command for tuberculosis, from Fort Benjamin Harrison, Lieut. MAURICE I. STEIN, New Bloomfield.

To Camp Greene, Charlotte, N. C., for duty, from Fort Benjamin Harrison, Lieut. WARREN STIRLING, Philadelphia.

To Camp Meade, Annapolis, Md., for duty, from Camp Wheeler, Lieut. WILLIAM F. CRAIG, Philadelphia.

To Camp Shelby, Hattiesburg, Miss., base hospital, from Fort Oglethorpe, Lieut. THOMAS W. GRAYSON, Pittsburgh.

To Camp Upton, Yaphank, L. I., N. Y., base hospital, from Allentown, Pa., Capt. JOHN A. HAWKINS, Pittsburgh.

To Camp Wadsworth, Spartanburg, S. C., for temporary duty, from Philadelphia, Capt. ERNEST M. VAUGHAN, Royersford.

To Camp Wheeler, Macon, Ga., base hospital, from Camp Greenleaf, Lieut. CORTLAND W. W. ELKIN, Pittsburgh.

To Fort Clarke, Texas, for duty, with the Sanitary Train, from Fort Benjamin Harrison, Capt. CAREY J. VAUX, Pittsburgh.

To Fort Leavenworth, Kan., for duty, from Camp Wheeler, Lieut. WILDER J. WALKER, Wilkinsburg.

To Fort Logan H. Roots, Ark., for duty in the United States Army General Hospital, from Gettysburg, Capt. CLIDE L. CURLL, Pittsburgh.

To Fort Oglethorpe, Ga., for instruction, from Rockefeller Institute, Lieut. PHILIP F. WILLIAMS, Philadelphia.

To Fort Riley, Kan., for instruction, from Camp Sheridan, Capt. CHARLES B. REITZ, Allentown.

To Fort Sam Houston, for duty in the department laboratory, from Rockefeller Institute, Lieut. ERNEST J. ATEN, Pittsburgh.

Honolulu, Hawaii, for duty, from Fort Benjamin Harrison, Lieut. RAY M. ALEXANDER, Bolivia.

To Newport News, for duty, from Fort Monroe, Lieut. MAURICE GOLDBERG, Philadelphia.

To New York City, Neurological Institute, for intensive training in brain surgery, from Surgeon-General's Office, Capt. FLOYD E. KEENE, Philadelphia; to Post-Graduate Hospital for instruction in urology and dermatology, Capt. WARREN WALKER, Philadelphia; Lieuts. JACOB R. BROBST, Bloomsburg; DAVID S. GRIM, Reading.

To New York City, Neurological Institute, for intensive training in brain surgery, Lieuts. NATHAN B. [illegible], Philadelphia; from Camp Greenleaf, MARSHALL C. RUMBAUGH, Dorranceton.

To United States Army General Hospital No. 4, for duty with Hospital Unit "A," Lieut. WILLIAM C. POWELL, Bryn Mawr.

Honorably discharged on account of being physically disqualified for active service, Capt. JOHN C. DaCOSTA, Jr., Philadelphia.

Honorably discharged, Lieut. CHARLES S. ROTTNER, Philadelphia.

To his home and honorably discharged on account of being physically disqualified for active service, Capt. LAUREN C. THOMAS, Latrobe.

To the inactive list, from Camp Greenleaf, Lieut. SAMUEL McCLARY, Philadelphia.

Rhode Island

To Camp Dix, Wrightstown, N. J., for duty, from Fort Benjamin Harrison, Capt. THOMAS F. SCANLON, Providence.

To Camp Logan, base hospital, from Camp Beauregard, Capt. ROSWELL S. WILCOX, Providence.

To Camp Upton, Yaphank, L. I., N. Y., for examination of command for tuberculosis, from Walter Reed General Hospital, Lieut. NORMAN B. COLE, Newport.

To Morrison, Va., for duty, from Fort Benjamin Harrison, Lieut. BENJAMIN J. BUTLER, East Providence Center.

South Carolina

To Fort Logan H. Roots, Ark., for duty, from Gettysburg, Pa., Capt. LAWRENCE R. CRAIG, Dillon.

To Fort McPherson, Ga., for duty with Hospital Unit "O," from Camp Greene, Charlotte, N. C., Lieut. ROBERT H. CRAWFORD, Rock Hill.

South Dakota

To Fort Oglethorpe, Ga., for duty, from Fort Riley, Lieut. LINDSAY Z. FLETCHER, Montrose.

Tennessee

To Army Medical School, Washington, D. C., for duty in the bacteriologic laboratory, from Rockefeller Institute, Lieut. ANDREW B. JONES, Nashville.

To Camp Lee, Petersburg, Va., for temporary duty, from Philadelphia General Hospital, Lieut. HOWARD M. FRANCISCO, Nashville.

To Fort McPherson, Ga., for duty with Hospital Unit "S," Capt. ALBERT W. HARRIS, Nashville.

To Knoxville, Tenn., to report to the recruiting officer for duty, Lieut. REESE W. PATTERSON, Knoxville.

New Orleans, Charity Hospital, for instruction, and on completion to *Fort Worth, Texas*, base hospital, Lieut. PAUL H. FAUCETT, Columbia.

To New York City, Post-Graduate Hospital, for instruction in dermatology and urology, from Camp Lee, Lieut. BENJAMIN C. ARNOLD, Jackson.

Texas

To Camp Bowie, Fort Worth, Texas, base hospital, from Camp Greenleaf, Lieut. CALVIN W. DAVIS, Long View.

To Camp Kearney, Linda Vista, Calif., base hospital, Lieut. WILL M. SCHULTZ, Georgetown.

To Camp Meade, Annapolis Junction, Md., for temporary duty, from Evans Dental Institute, Philadelphia, Capt. JOSEPH E. JOHNSON, Kirvin.

To Camp Taylor, Louisville, Ky., base hospital, from Evans Dental Institute, Philadelphia, Major WILLIAM E. HALL, Texas City.

To Fort Riley, for duty with Evacuation Hospital No. 7, from Camp Grant, Lieut. GEORGE L. LANGWORTHY, Lakeview.

To Fort Sam Houston, for duty in the department laboratory, from Rockefeller Institute, Lieut. RICHARD C. CURTIS, Temple.

To Garden City, L. I., N. Y., for duty, from San Antonio, Texas, Lieut. DOUGLAS S. EDWARDS, San Antonio.

To Morrison, Va., for duty, from Richmond, Va., Lieut. HENRY F. WILKINS, Fort Worth.

To report by wire to the Commanding General, Southern Department, Lieut. CHARLES F. CLAYTON, Lubbock.

To report in person to the governor, Panama Canal, for assignment to duty, from Panama Canal Department, Lieut. PAUL J. CONNOR, Madisonville.

Utah

To Camp Gordon, Atlanta, Ga., as member of board for examination of command for tuberculosis, from Camp Greenleaf, Lieut. GEORGE E. McBRIDE, Magna.

Vermont

To Camp Greenleaf, Fort Oglethorpe, Ga., for instruction, Lieut. DENNIS J. SHEEHAN, Lyndonville.

To Camp Sherman, Chillicothe, Ohio, as member of board for examination of command for tuberculosis, from Fort Benjamin Harrison, Lieut. ROLLIN D. WORDEN, Montgomery Center.

Virginia

To Camp Lee, Petersburg, Va., for duty, Lieuts. OLIVER C. BRUNK, Richmond; JULIUS J. HULCHER, Richmond; GEORGE S. BURT, Roanoke; for duty in the base hospital, from Fort Benjamin Harrison, Lieut. JUNIUS E. WARINNER, Jr., Richmond.

To Camp Taylor, Louisville, Ky., base hospital, from Evans Dental Institute, Lieut. SAMUEL P. CAST, Portsmouth.

To Camp Upton, Yaphank, L. I., N. Y., for examination of command for tuberculosis, from Walter Reed General Hospital, Lieut. THOMAS N. DAVIS, Lynchburg.

To Fort Oglethorpe, for duty with Evacuation Hospital No. 3, from Camp Greenleaf, Lieut. WILLIAM L. BRENT, Colonial Beach.

To Fort Omaha, Neb., for duty, from Fort Benjamin Harrison, Lieut. GRANVILLE EASTHAM, Rapidan.

To Fort Riley, Kan., base hospital, from Fort Benjamin Harrison, Lieut. ROBERT J. STYER, Jetersville.

Washington

To Army Medical School, Washington, D. C., for duty in the bacteriologic laboratory, from Rockefeller Institute, Capt. AUSTIN U. SIMPSON, Seattle.

To Fort Des Moines, Iowa, from Camp Robinson, Sparta, Wis., Capt. IRA C. BROWN, Seattle.

To his home and honorably discharged on account of being physically disqualified for active service, from Camp Lewis, Lieut. CHARLES S. NOBLE, Seattle.

West Virginia

To Camp Lee, Petersburg, Va., as member of board for examination of command for tuberculosis, Lieut. DAVID P. SCOTT, Ashland.

Wisconsin

To Camp Custer, Battle Creek, Mich., as member of board for examination of command for tuberculosis, from Fort Benjamin Harrison, Lieut. IRVING A. MYERS, Cottage Grove.

To Camp Dodge, Des Moines, Iowa, for examination of command for tuberculosis, from Fort Benjamin Harrison, Lieut. CHARLES H. MEYST, Burlington.

To Camp Pike, Little Rock, Ark., for base hospital, from Fort Benjamin Harrison, Lieut. CHARLES B. RYDELL, Superior.

To Cleveland, Ohio, for instruction and on completion to *Camp McClellan*, base hospital, Lieut. GUSTAVE E. ECK, Lake Mills.

To Fort Logan H. Roots, Ark., base hospital, from Fort Benjamin Harrison, Lieut. LEO H. FLYNN, Eau Claire.

To Fort Oglethorpe, for duty, from Camp Meade, Capt. RALPH KAYSON, Plymouth.

To Fort Riley, Kan., for instruction, Capt. CHARLES A. CRITCHLOS, Mellen.

To New York City, for instruction, and on completion to *Rochester, Minn.*, for instruction, Lieut. THOMAS J. SNODGRASS, Janesville; to *Post-Graduate Medical School* for instruction in urology and dermatology, from Fort Ethan Allen, Lieut. ELIAS BIBBY, Milwaukee.

To Pittsburgh, Pa., for instruction in military roentgenology, Capt. GENTZ PERRY, Amery.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

Dinner to Base Hospital Staff.—At a banquet given at the Los Angeles Athletic Club, November 8, by 125 physicians of Los Angeles and vicinity, the guest of honor was Dr. Rea E. Smith, and sixteen other physicians of Los Angeles who make up the base unit for war service. Dr. Walter Lindley officiated as toastmaster.

Personal.—Dr. George A. Zorb, a member of the resident staff of the Receiving Hospital, Los Angeles, has been seriously ill from septicemia, due to an operation wound, but is now convalescent.——Dr. Clarence A. Wills, San Leandro, for many years superintendent of the Alameda County Infirmary, Oakley, has resigned to enter the military service.

CONNECTICUT

Personal.—The directors of the Gaylor Farm Sanitarium, New Haven, have voted a leave of absence for six months to the superintendent, Dr. David R. Lyman, who is going to France to study tuberculosis conditions.——Dr. J. E. Radding has been appointed assistant to Dr. James B. Dinnan, superintendent of the State Sanatorium, Meriden, succeeding Dr. Cole B. Gibson, who has entered military service.

Dietitians Organize.—The Connecticut Association for Dietitians has recently been organized. The object of the organization is to promote closer cooperation between dietary departments and allied departments. While the founders are hospital dietitians only, membership is open to all who have contributed to and are interested in the advancement of dietetics. It is thought that there is a great need of better trained dietitians, and that this can be accomplished by close work among physicians, hospital superintendents, heads of home economics departments and hospital dietitians. At the November meeting, held at Grace Hospital, New Haven, the following officers were elected: president, Miss E. M. Geraghty, New Haven; vice president, Miss Laura Siegel, Stamford, and secretary-treasurer, Miss Ethel C. Pipes, Hartford.

ILLINOIS

Personal.—Harold B. Fromme, Peoria, has been appointed quarantine officer by the state director of health, and detailed to duty at Camp Grant, Rockford, succeeding P. E. Cooney.

Health of Chicago.—November 24, fifty-four new cases of diphtheria and six deaths from this disease were reported to the health department. Infantile paralysis is rapidly disappearing. The health department is urging citizens to boil water, as recent severe storms have made the lake water of doubtful purity. Chlorination is being resorted to as a means of controlling the contamination.

Control of Venereal Diseases.—Rules for the control of venereal diseases in Illinois, including placarding of immoral houses, provided especially to protect troops quartered in the state were announced by Dr. C. St. Clair Drake, state director of health. The regulations include reports of all cases of venereal diseases and the placarding of all premises suspected of being used for immoral purposes, the provision of proper medical care for indigent infected persons, and the prohibiting of engaging in any occupation the nature of which is such that it may be borne to others of any person having active infectious venereal disease. Penalties of a fine up to $200 or imprisonment in jail, not to exceed six months, or both, are provided for violation of the regulations.

Antituberculosis Meeting.—At the ninth annual meeting of the Illinois Association for the Study and Prevention of Tuberculosis, held in Champaign, November 9, the following officers were elected: president, Dr. George Thomas Palmer, Springfield (reelected for the seventh term); vice presidents, Dr. William A. Evans, Chicago; Ethan Allen Gray, Chicago; Cecil M. Jack, Decatur, and Lewis C. Taylor, Springfield; secretary, Dr. Jeanette C. Wallace, Peoria; treasurer, Mr. David R. Forgan, Chicago; executive committee, new members: Dr. James W. Pettit, Chicago; Mrs. Joseph T. Mason, Aurora, and George W. Perkins, Chicago, and holdover members, Mrs. A. L. Adams, Jacksonville; Dr. Edward W. Fiegenbaum, Edwardsville, and Dr. Orville W. McMichael, Chicago.

INDIANA

District Meeting.—The annual meeting of the Seventh Indiana Councilor District Medical Association was held in Danville, November 21. Dr. Samuel E. Earp was elected president; Dr. Murray N. Hadley, secretary, and Dr. Thomas B. Eastman, councilor, all of Indianapolis.

Personal.—Drs. Eric A. Crull, Adam L. Schneider and Abraham J. Kesler, all of Fort Wayne, have been appointed members of the board of health of that city.——Dr. Benjamin F. Tetters, Middlebury, who was operated on recently, is reported to be making satisfactory progress toward recovery.

State Housing Laws.—The state board of health has issued orders to the city boards of health of Gary, Whiting, Hammond, East Chicago and Indiana Harbor that they take immediate steps to enforce the state housing laws. If the cities do not respond, the state board will take charge and enforce the laws in an effort to clean up the "gross insanitary conditions" in those cities.

New Isolation Hospital.—Plans have been submitted to the city board of health, Indianapolis, for a new contagious disease hospital to cost from $90,000 to $100,000. Investigation will start at once to see if money will be available for the construction of the building at this time. While the present facilities for the treatment of persons with contagious diseases are inadequate, it is not believed that the building can be constructed at this time, owing to the lack of funds.

IOWA

Hospital Unit Mobilizes.—Hospital Unit K, Council Bluffs, was mobilized at Fort Porter, N. Y., November 14, and is being equipped for service. This unit consists of twelve medical officers, one head nurse, twenty female nurses and fifty enlisted men. The medical personnel consists of the following reserve officers: Major Donald Macrae, Jr., director, Council Bluffs; Capts. F. Earl Bellinger, general surgery, Council Bluffs; John W. Shuman, chief medical officer, Sioux City; Louis L. Henninger, eye, ear, nose and throat, Council Bluffs, and Chalmers A. Hill, orthopedic surgery, Council Bluffs; Lieuts. John S. McAtee, genito-urinary surgery; Robert S. Moth, adjutant, medical, and Louis E. Hanisch, general surgery, Council Bluffs; Aldis A. Johnson, pathologist and bacteriologist, and George P. Pratt, medical, Omaha; Robert C. Crumpton, medical, Webster City, and Albert E. Sabin, medical, Kirkman.

Personal.—Lieut. Daniel J. McCarthy, M. R. C., U. S. Army, Davenport, who recently started for Roumania, has arrived safely in Moscow, Russia.——Dr. Emil O. Ficke, Davenport, formerly the county physician, has been appointed a member of the Board of Commissioners for the Insane of Scott County, to succeed Dr. John A. DeArmand, deceased.——Drs. James M. Fettes, William T. Shepard, G. Henry Mammen, William W. Larsen and Martin J. Joynt, all of LeMars, have united to form the LaMars Clinic, which will be located on the second floor of the Royal Building.——Dr. James B. Miner, Augustus F. Kober, Julius Niemack and Raymond W. Stober, all of Charles City, have been elected directors of the Cedar Valley Hospital, Charles City.——Dr. Mark F. Boyd, professor of preventive medicine and hygiene in the State University of Iowa, Iowa City, has accepted the position of head of the department of bacteriology in the University of Texas, Galveston.

MARYLAND

Personal.—Lieut. James M. Shields, formerly of Colorado, has been stationed at the base hospital at Fort McHenry, where he will have charge of the eye, ear, nose and throat ward.——Dr. Alexander R. Mitchell, Monkton, has been appointed health officer of the seventh district of Baltimore County.——Dr. James A. Nydegger, U. S. P. H. S., Baltimore, delivered an address on the "Relation of the Rural Schools to National Health," at the Maryland State Teachers' Association. Dr. Nydegger claims the insanitary condition of our rural schools is the chief cause of the poor physical condition of so many young men who have been drafted and found to be unfit for military service.——Dr. William S. Thayer, who has been in Petrograd for several months with the American Red Cross Mission, is on his way back to the United States.

Report of Lunacy Commission.—At the semiannual meeting of the State Lunacy Commission with the boards of managers of the State Institutions for the Insane and Feebleminded and the Board of State Aid and Charities, held, November 22, in Baltimore, the report of the commission showed that there were in the twenty institutions under the supervision of the commission, on Sept. 30, 1917, 5,196 patients, or one patient to every 262 of the population of Maryland. There were admitted during the biennial period, 4,557 patients. The total number of patients discharged and died during the biennial period was 4,194, leaving a net increase of 363 patients for the two years. During the past five years there has been an average yearly net increase of 150 patients. The report on the after-care work for the past year showed that a saving of $10,693 had been made by paroling patients under the supervision of the after-care agent and making them more or less self-supporting. In all 124 patients were paroled under the supervision of this department. As a result of a preliminary survey of the feebleminded, conducted through the cooperation of the Committee on the Prevention of the Feebleminded, it was recommended that a complete survey of this class of defectives be made throughout Maryland, during the coming year. The report urges that farm colonies be established at the state institutions to supply sufficient beds for the rapidly increasing number of insane and feebleminded at the lowest possible per capita, as well as to increase the farming activities of the institutions.

MISSOURI

Correction.—The statement in a recent issue that Dr. William A. Clark, Jefferson City, had been appointed physician to the penitentiary was erroneous. Dr. Clark is only acting as prison physician at the request of the board until the board can decide on a permanent appointment.

Free Syphilis Clinics.—The health department of St. Louis has completed plans for establishing free syphilis clinics under municipal control. All persons affected with syphilis in its infectious stage will be urged to go to the municipal clinic for treatment where at least two injections of salvarsan will be administered. An active campaign of education will be conducted to familiarize the people with the importance of these clinics and the benefits of early treatment of syphilis. It is the first instance of municipal clinics for syphilis to be established in this country.

Personal.—Dr. Alfred B. Miller, Macon, had a narrow escape from serious injury, when the front wheels of his automobile ran into an open gulley, the bridge having been broken down by a traction engine. He managed to stop his car on the brink, though the front wheels were extending over at least a foot.——Dr. Robert F. Hyland, St. Louis, suffered severe injuries on November 15, when his automobile collided with a motor truck.——Dr. Clarence A. McGuire, Kansas City, now on duty at a base hospital in France, has recovered from the injuries he suffered at the time Dr. Fitzsimmons was killed by a bomb dropped from a German aeroplane.

NEW YORK

Personal.—Dr. Joseph S. Lewis, Buffalo, suffered a fracture of the clavicle and other injuries in a collision between his automobile and a street car, November 14.——Dr. Edward Danforth, Bainbridge, who is in the military service in France, is reported to be ill.

Dinner Given Bissell.—The first health officers' class of the University of Buffalo gave a complimentary dinner to Dr. William G. Bissell, Buffalo, bacteriologist and chief of the bureau of laboratories of the Buffalo Department of Health and his assistants, at the Hotel Statler, November 21. Dr. Fowler A. Watters, Lockport, officiated as toastmaster, and addresses were delivered by Dr. Thomas H. McKee, dean of the University of Buffalo, on "The Attitude of the University of Buffalo Toward Health Officers and Their Work," and by Dr. William G. Bissell, on "The Need of a Closer Union Between Civil Laboratories and Rural Communities, and How to Obtain It." At the conclusion of this program, impromptu speeches were made.

New York City

Bellevue Hospital Unit Mobilizes.—The Base Hospital Unit of Bellevue Hospital has mobilized its 300 members at the Twelfth Regiment Armory. Among the personnel of the unit are thirty-five doctors and eighty-three nurses.

Reclamation Gymnasium.—Cornell University Medical College announces that it is about to establish a reclamation gymnasium in which classes will be conducted for men who have been rejected from the army and navy services on account of minor physical defects.

Flower Hospital Raises Flag.—Flower Hospital recently unfurled a service flag, carrying 120 stars, the gift of Major William Tod Helmuth and Mrs. Royal S. Copeland. As a part of the ceremony of presentation, 300 medical students in uniform paraded in the vicinity of the hospital.

Enforcement of Antispitting Law.—Health Commissioner Emerson has ordered police departments to enforce the antispitting law and to arrest all who spit in public places. In a letter to Chief Magistrate McAdoo he asks that the police magistrates act with determination in imposing suitable sentences on all such offenders.

The Hospital Intern Problem.—At a meeting of the Public Health Committee of the New York Academy of Medicine, regarding the hospital intern problem, the following resolution was adopted and endorsed by the president on behalf of the academy:

> *Resolved,* That the Public Health Committee of the New York Academy of Medicine suggest to the Surgeon-General of the United States Army the desirability of a change in the wording of the "Circular of Information on the Completion of Internships of Commissioned Officers (Form I-1)," permitting the period of internship to terminate in December of the year following graduation instead of in July of that year. Permission to remain on the inactive list for the period named should, of course, be granted only "if the exigencies of the service permit."

Personal.—Dr. Katherine B. Davis, who was recently appointed head of the New York Parole Board by Mayor Mitchell, has resigned to accept the general secretaryship of the Rockefeller Bureau of Social Hygiene.——Capt. Bertram DeN. Cruger, who is a member of the parole board, at present on leave of absence as a captain in charge of a depot brigade at Camp Upton, has been appointed to the position of head of the parole board for a term of ten years at a salary of $7,500 a year.——Dr. Theron J. Vosburgh has been appointed superintendent of the city farm at Warwick, which is conducted by the Board of Inebriety, to succeed Dr. Charles S. Stokes, who resigned a short time ago. The position carries a salary of $5,000.

Plan to Reduce the Number of Physically Unfit Sent to Camps.—Charles E. Hughes, chairman of the District Board of Appeals for New York, has appointed a committee of five physicians whose duties will be to try to find a way of reducing the number of physically unfit men sent to the National Army cantonments. The members of this committee are Drs. Ernest L. Hicks, George E. Doty, James E. Shuttleworth, Herman T. Radin and James S. Waterman, Brooklyn. The appointment of this committee was made at the suggestion of Dr. Robert L. Dickinson, Brooklyn, assistant chief of the Medical Committee on National Defense. It is said that from 2 to 9 per cent. of the men sent to the camps have been rejected after their arrival at the cantonments.

The Nursing Situation in New York.—The Standing Committee on Nursing of the Mayor's Committee of Women on National Defense has made a survey of the nursing situation in this city. Their census shows that there are in New York City 17,377 people engaged in some form of nursing service. Of this number 6,459 are graduate registered nurses and 3,849 are graduate nurses who are not registered. One in four of the registered nurses is enrolled with the Red Cross Nursing Service, making 1,701 Red Cross nurses who may be called on for war service. Probably 1,000 of these will be needed during the year. The pupil nurses who will be graduated during the year number 824; this leaves about 150 whose places will not be filled by new graduates. Several hospitals in order to meet the demand have taken larger classes than usual, Bellevue Hospital having initiated a plan of taking a certain number of pupil nurses who bear their own living expenses. Several hospitals are offering a shorter course to college women whom it is hoped will be qualified to take responsible positions in institutions and in the public health field. The report urges qualified young women to take up the profession of nursing in the training schools and prepare to fill the gaps in the nursing service that will be left open as the war goes on.

NORTH DAKOTA

Personal.—Dr. Charles H. Aylen, Drayton, left, November 14, for Winnipeg, to enter the Canadian Army Medical Corps.

Compulsory Vaccination.—North Dakota has had a compulsory vaccination law for several years, but it has never been enforced. Compulsory vaccination will be required in the schools of the state, this year, for the first time in its history. Reports to the state board of health, according to the *Bulletin* for October, indicate that at the present time, about 90 per cent. of the schools have observed the requirements.

OHIO

Sanatorium Completed.—The Fountain Park Sanitarium in Champaign County is now ready for occupancy. The building is three stories in height, erected at the approximate cost of $80,000.

Personal.—Dr. Abraham J. Shoemaker, Columbus, has resigned as night physician at the state penitentiary.——Dr. Sterling B. Taylor, Columbus, has assumed his duties as chief surgeon of the Toledo and Ohio Central and Zanesville and Western Railroads, with headquarters in Columbus.

Hospital Notes.—The old Schwartz Castle, Columbus, has been remodeled and opened as the Columbus Maternity Hospital. Dr. A. Livingston Stage is president of the corporation, which is not for profit. The hospital is open to all reputable physicians.——The effort adequately to care for charity patients at the hospitals of Marion was begun, October 20, by the city members of the Marion County Medical Society. By means of this organization all charity cases approved by the Marion Social Service League will be treated at the Marion General Hospital, or the Orchard Hospital. Dr. Auguste Rhu was selected as chief of staff, and Dr. Dana O. Weeks, secretary.

PENNSYLVANIA

Personal.—Dr. John L. Sagerson, Johnstown, who was painfully injured in an automobile accident, November 14, is reported to be doing well.——Lieut. G. Franklin Bell, M. R. C., U. S. Army, Williamsport, who has been ill at the cantonment camp, Greenville, S. C., is reported to be convalescent.

Medical Aid Society Elects.—At the annual meeting of the Aid Association of the Philadelphia County Medical Society, November 12, Dr. Samuel D. Risley was elected president, succeeding Dr. Jacob R. Shellenberger, relieved at his own request, and the following officers were reelected: vice president, Dr. Edward E. Montgomery; secretary, Dr. Lewis H. Adler, Jr.; treasurer, Dr. John B. Turner; consultant, Francis C. Adler, and directors, Dr. Isidor P. Strittmatter, William S. Wray and William T. Hamilton.

TEXAS

Changes in Regents' Board.—Dr. Ralph Steiner, Austin, has been appointed a member of the board of regents of the University of Texas, and Dr. S. J. Jones, Salado, has resigned as a member of the board.

The State Board and the State Journal.—An arrangement has been made by which the matter heretofore contained in the *Monthly Bulletin* of the Texas Board of Health will be printed in the *State Journal of Medicine*, which is owned by the state medical association. This is similar to the arrangement in Ohio. The separate bulletin of the department is to be discontinued.

Society Meeting.—At the annual meeting of the Fourth District Medical Society, held in Brownwood, November 10, Dr. Joseph E. Dildy, Lampasas, was elected president, and Dr. J. William Blasdell, Ballinger, secretary. Coleman was selected as the place of meeting for next year.——At the semiannual meeting of the South Texas District Medical Society, held in Beaumont, October 11, Dr. James E. Thompson, Galveston, was elected president; Dr. Wil T. Williams, Beaumont, vice president, and Dr. Albert H. Braden, Beaumont, secretary-treasurer. Houston was selected as the next place of meeting.

Bureau of Rural Sanitation.—The Texas State Board of Health has created a Bureau of Rural Sanitation whose activities will be devoted to directing, supervising and assisting in rural health work. Dr. Platt W. Covington, Marquez, has been placed at the head of the department. From $3,000 to $6,000 will be spent this year in intensive community health work in the rural districts of the counties agreeing to employ four local assistants at $50 a month each, for a period of four, eight or twelve months. These assistants are to work with a staff of trained sanitarians furnished by the state and the International Health Board, the state legislature having made an appropriation of $90,000 for joint work with the International Health Board for intensive measures against preventable diseases in the rural districts. The following counties have made appropriations, under the foregoing arrangements, to carry on this work: Harris, Dallas, McLennan, Bexar, Jefferson, San Jacinto, Polk, Leon, Hardin, Trinity and Wharton. The work is now in progress in Polk, Dallas and Harris counties.

CANADA

Personal.—Lieut.-Col. Walter T. Connell, C. A. M. C., has resigned as consulting physician to the Kingston (Ont.) Penitentiary, and has been succeeded by Dr. Robert Hanley, Kingston.——Lieut.-Col. Charles H. Gilmour, Toronto, now surgeon-in-chief of the Ontario Military Hospital, Orpington, England, has been made a member of the Royal College of Surgeons, London.

Hospital News.—Oshawa, Ont., is to have a maternity hospital, a donation of his residence, by Mr. R. S. McLaughlin of that town.——The Isolation Hospital at Saskatoon, Sask., has been completed. It is situated adjacent to the city hospital, comprises four wings and contains twelve wards, with additional accommodation for the nursing staff. Accommodation is also provided for insane patients pending their removal to a hospital for the insane; so it will be no longer necessary to place such patients in the common jail.——The Esquimalt Convalescent Hospital has lately been extended by the addition of a department of vocational training. The medical officer in charge is Dr. Edward S. Hasell, who was formerly on the surgical staff of the Royal Jubilee Hospital, Victoria, B. C.

University News.—In a recent speech Sir Robert Falconer, president of the University of Toronto, stated there were at present over 6,000 undergraduates of that university on active service overseas, 1,000 of whom were serving in the ranks. He considers that medical students should be exempt from conscription in Canada, and that the medical faculties of the universities in Canada should be formed into medical corps so as to be available if required for the treatment of returned soldiers.——Lieut.-Col. Hadley Williams, London, Ont., has returned from the Ontario Military Hospital, Orpington, England, and has resumed his duties as professor of surgery in the Western University, London, Ontario.——Dalhousie University, Halifax, N. S., has the largest registration in the first year class in medicine in its history. Most of the students of the higher years have returned, but many members of the teaching staff are still on active military service.——The total number of students registered in the medical faculty of McGill University, Montreal, is 362; in the first year there are ninety-three men, a larger number than last year. Fifth year students will be graduated on April 1, so as to permit of going overseas immediately thereafter.

GENERAL

Southern Medical Women Meet.—At the fifth annual meeting of the women physicians of the Southern Medical Association which was held in Memphis, November 13, the following officers were elected: president, Dr. M. Louise Strobel, Washington, D. C.; vice presidents, Drs. Elizabeth C. Kane, Memphis, Tenn., and Olive A. C. Wilson, Paragould, Ark., and secretary-treasurer, Dr. L. Rosa H. Gantt, Spartanburg, S. C.

Southern Railway Surgeons Elect Officers.—At the annual meeting of the Southern States Association of Railway Surgeons, held in connection with the meeting of the Southern Medical Association at Memphis, November 14, Dr. Inman W. Cooper, Meridian, Miss., was elected president; Dr. William A. Chapman, Cedartown, Ga., vice president, and Dr. Ambrose McCoy, Jackson, Tenn., secretary.

Southern Physicians Elect Officers.—At the eleventh annual meeting of the Southern Medical Association, held in Memphis, Tenn., November 12 to 15, the following officers were elected: president, Dr. Lewellys F. Barker, Baltimore; vice presidents, Drs. William H. Deaderick, Hot Springs, Ark., and Thomas C. Holloway, Hazard, Ky., and secretary, Dr. Seale Harris, Birmingham, Ala.; acting secretary, Dr. James R. Garber, Birmingham, Ala.; editor of the *Southern Medical Journal*, Dr. Marye Y. Dabney, Birmingham, Ala., and chairman of the executive council, Dr. Henry H. Martin, Savannah, Ga. Asheville, N. C., was selected as the place of meeting for 1918. On Sunday, the day before the opening of the convention, the pulpits of the city were filled by medical men.

FOREIGN

Deaths in the Profession Abroad.—Hugh McMinn Smellie, M.B., C.M., Edinburgh, 1886; Sanhead, Wigtownshire, Scotland; aged 60; surgeon on the Anchor Line steamships; surgeon of the *Cameronia*, when she was torpedoed and sunk in European waters; died suddenly on board the *Tuscania* in Erie Basin, Brooklyn, November 11, from heart disease.

PARIS LETTER

Paris, Nov. 1, 1917.

The War

APPENDICITIS IN THE ARMIES IN THE FIELD

At one of the recent meetings of the Société de chirurgie de Paris, Dr. Walther, assistant professor on the Faculté de médecine de Paris, and surgeon of the hospitals, presented a memoir on this subject by Dr. Rouhier. Rouhier has been astonished at the unusual number of cases of appendicitis occurring in the armies in the field; appendicitis occurs more frequently here than among civilians of the same age. This may be explained by the conditions of life at the front: the meat diet, the free use of wine, fatigue, and exposure to wet and cold, all of which may awaken an old chronic appendicitis, and convert it into an acute case of more or less severity. These conditions may even give rise to acute intestinal affections and appendicitis, which is apparently primary. Rouhier has also been struck by the particular gravity of the attacks he has observed, perhaps the result of overexertion, which lowers the resistance to the infection. Walther does not agree with Rouhier that irregular forms of appendicitis in which the diagnosis is dubious are more frequent at the front than at the rear; perhaps they are more often overlooked on account of the difficulty of examination. On the other hand, Walther agrees with him that as soon as the diagnosis of appendicitis is made, the patient should be evacuated without delay and without relay, as would be a patient with an abdominal wound, to the surgical formation where he can be taken care of properly: operated on, if possible, and treated expectantly if the circumstances permit. Rouhier, discussing the question of immediate operation as against expectant treatment, is of the opinion that at the front, more than at the rear, intervention is indicated; but Walther declares that operation is urgently indicated in both situations alike.

Rouhier has also studied the connection between appendicitis and typhoid fever, which, he believes, predisposes to appendicitis later. One must bear in mind that frequently it is difficult to diagnosticate between appendicitis, periappendicitis and peri-ileotyphlitis in relation to the habitual seat of typhoid ulcerations in Peyer's patches. In closing, Rouhier mentioned a special and particularly grave form of appendicitis, that is, perforating appendicitis, occurring as the primary manifestation of typhoid fever. In one instance, within twenty-four hours the appendix became gangrenous and perforated, with a discharge of seropurulent fluid into the abdominal cavity. This was the first manifestation of the typhoid fever, which progressed steadily and finally terminated in the death of the patient in about a month.

USE OF MORPHIN BEFORE OPERATIONS AND FOR THE WOUNDED

At a recent session of the Society of Comparative Pathology, Dr. Regnault discussed the use of morphin in the wounded. Morphin is used, first, as an adjuvant to anesthesia, and, second, to dull the pains of the wounded, aside from operations. In the first case, one must make certain reservations as to that method of procedure, as it superposes two intoxications; however, that method has given good results under varying circumstances. Although of little value when given with chloroform and ethyl chlorid, there appears to be some advantage in restraining the shock which occurs during operations on large nerve trunks, when one cannot resort to Crile's method of double anesthesia, blocking the principal nerve trunks by the local injection of stovain, novocain, etc. The use of a small dose of morphin cannot be compared to the chronic intoxication which follows the habitual use of anodynes. When local anesthesia is resorted to, 0.5 to 1 cg. of morphin, administered before the operation is begun, has yielded excellent results. The same is true of a mixture of scopolamin and morphin. The efficacy of these drugs may be increased by resorting to psychotherapy. Besides making use of morphin at operations, Regnault also gives it to relieve the pain of the wounded, especially when the kidneys and brain are intact. The toxic action of small doses of morphin is less dangerous than the shock resulting from the pain and the fatigue following sleeplessness due to pain. Pain is an antidote to morphin; a small dose of morphin acts as a general stimulant, and not as an anodyne, as do the larger doses.

Colonel Le Bel Receives the Decoration of the Legion of Honor

For reasons of health, Colonel Le Bel, physician in chief of the Canadian hospital at Saint-Cloud, has left France to return to Quebec. As an evidence of the recognition of France for the services rendered by the colonel to the French wounded, M. Justin Godart, the undersecretary of state for the army medical department, has conferred on him the cross of an officer of the Legion of Honor.

LONDON LETTER

London, Nov. 6, 1917.

The War

WAR BREAD

In certain cases of disease, the government grants permits for the use of white flour; but the applications are becoming so numerous, and the necessity for economizing wheat so imperative, that it is not possible to accede to all of them. A medical subcommittee has been appointed by the Ministry of Food to deal with such cases. It finds in many cases no substantial grounds for the applications, which appear to be made merely to satisfy some whim of the patient and not because the government regulation flour has been found to be deleterious. Speaking generally, it may be said that unless some affection of the digestive organs is present which, in the opinion of the War Bread Medical Subcommittee, justifies the use of pure wheaten flour, an application cannot be granted. Thus, for instance, in acute affections of the stomach (acute gastric catarrh, ulcer in its acute stages, etc.), the use of any form of bread while the disease is at its height is probably inadmissible. During the convalescent stages the prescription of pure wheaten flour for a limited period may be permissible if rusks and breakfast biscuits or ordinary bread boiled and sieved, or bread jelly, do not meet the case. In chronic functional disorders of the stomach (which make up the majority of cases of chronic dyspepsia), the use of pure wheaten flour can rarely be allowed, for the reason that such cases are so numerous and so protracted in their course that it would be impossible to meet demands without seriously depleting the wheat supply of the rest of the population. The use of the present bread, well toasted and thoroughly chewed, or of biscuits and rusks, is recommended. In chronic organic disease of the stomach (carcinoma and chronic ulcer), white flour may sometimes be advisable, if the patient is able to take bread at all. In acute affections of the intestine (acute diarrhea, enteritis, colitis, ulcerative conditions, etc.), the same remark applies as in acute affections of the stomach. In chronic intestinal affections (chronic diarrhea, chronic colitis, malignant disease, etc.), the use of white flour may be desirable; but evidence is required to show that ordinary bread, toasted and thoroughly chewed, and the use of other measures, have failed to relieve the symptoms. Cases of disease of the nervous, circulatory or respiratory systems, or the urinary organs or skin, or such general conditions as anemia and diabetes, are considered rarely suitable for grants. As regards tuberculosis, there is no evidence that the war bread is injurious.

THE CONTROL OF VENEREAL DISEASES

The problem of the control of venereal diseases is receiving
a good deal of attention both at home and in our dominions
beyond the seas. The National Council for Combating
Venereal Diseases (a philanthropic body formed for this
object) has adopted a resolution in which it refrains from
recommending prophylaxis in the form of provision of outfits
to men before sexual indulgence. At the same time it urges
the importance of making arrangements for early treatment
before the onset of symptoms. The Local Government Board
has sent to the councils of counties and county boroughs in England and Wales a circular calling attention to putting into force the Venereal Disease Act. The purpose of the act is to prevent the treatment of venereal disease otherwise than by duly qualified physicians, and to control the supply of remedies therefor. The necessity for such a measure is shown by the report of the Royal Commission of Venereal Diseases, which stated that the continued existence of unqualified practice constitutes one of the principal hindrances to the eradication of those diseases. The act renders it illegal for any one other than a duly qualified physician for reward, either direct or indirect, to treat any person for venereal disease, or prescribe any remedy for such disease, or give any advice in connection with the treatment thereof, whether the advice is given to the person to be treated or to any other person. But this prohibition does not come into operation within any area until a scheme for the gratuitous treatment of persons in that area suffering from venereal disease has been approved by the board and is already in operation. The act prohibits advertisements, public notices and announcements (other than advertisements, notices or announcements published by any local or public authority or with the sanction of the board, or publications sent only to duly qualified physicians or to wholesale or retail chemists for the purposes of their business) with respect to the treatment of venereal disease or the prescription of remedies therefor, or the giving of advice in connection with the treatment. The act also prohibits the advertisement or recommendation to the public of any so-called remedies for venereal disease by means of any printed papers or handbills, or by labels, etc., affixed to or delivered with any packet, bottle, etc., containing any such so-called remedies.

The Federal Committee of the British Medical Association is asking the state governments in New South Wales and in South Australia to pass a venereal diseases act on similar lines to the acts of the other states of the commonwealth described in the previous letter to The Journal. This committee is divided in opinion on the question of the advisability of making more widely known precautions for the prevention of venereal diseases that may be taken by those who have exposed themselves to the risk of infection. In Queensland and in Western Australia, physicians have not reported anything approaching the number of cases of venereal disease that must have occurred. The defense department in Australia has given facilities to civil practitioners to obtain special experience in the treatment of venereal disease by attendance at military venereal disease hospitals and camps. In Queensland the health amending act, 1917, gives the commissioner, instead of the governor-in-council, power to make regulations for the treatment of venereal diseases and for the establishment, management and control of dispensaries or other places for gratuitous treatment. No one must treat venereal diseases except a physician; but the commissioner may grant a permit to a pharmacist to prescribe if a physician is not available. In South Australia, the government is well satisfied with the night clinics for venereal disease. In Victoria the minister of health is appointing a venereal diseases advisory committee to assist in administering the Venereal Diseases Act. The sale by pharmacists of any "patent" or proprietary medicine specially recommended is prohibited for the treatment of any venereal disease. The following are specifically mentioned: hydrargyrum cum creta or its admixtures; red mercuric iodid; mercury tannate; mercuric cyanid in pill or tablet form; sandalwood oil or its derivatives; copaiba or its derivatives, in the form of emulsion or capsules; kharsivan (British salvarsan); argyrol; gray oil or similar mercurial emulsions; methylene blue in pills, tablets or capsules; medicated bougies, and gonococcus vaccines and serums. Every person suffering from venereal disease or suspected of so suffering must consult at regular intervals a physician, who shall deliver a warning notice of the penalties involved, and a booklet issued by the public health department, "Information Relating to Venereal Diseases." No person suffering from venereal disease shall carry, deliver, manufacture, prepare, or otherwise handle food intended for consumption by any other person. Precautions must be observed by individuals in the care of children.

The Medical Service of the Australasian forces in Egypt has established a prophylactic tent at the entrance of each camp where men who have exposed themselves to infection can be disinfected. These disinfections have been so successful that in a series of 2,000 cases only three men developed disease. In the first month after the introduction of the system, of 432 men who were treated, not one developed disease, while of thirty-five men who developed disease, not one visited the tent.

Deaths

Major Richard Weil, M. R. C., U. S. Army, New York City; College of Physicians and Surgeons in the City of New York, 1900; aged 41; died in the base hospital at Camp Joseph Wheeler, Macon, Ga., November 19, from *pneumonia*. Dr. Weil was one of the recognized leaders in American cancer research. He was a Fellow of the American Medical Association, and a member of the American Association of Pathology and Bacteriology; he was also visiting physician to Mount Sinai Hospital, and the Montefiore Home, New York City. Since 1906, Dr. Weil had been an active member of the Huntington Fund, and constantly engaged in the problems of cancer research. His contributions in the field of serology of cancer and in the general problems of immunity have gained for him an international reputation; he was one of the founders of the American Association of Cancer Research, and was one of the founders and editor-in-chief of the *Journal of Cancer Research*. At the reorganization of the Memorial Hospital in 1913, Dr. Weil became assistant director in cancer research and attending physician to the hospital, and labored energetically to establish an efficient and routine work of the institution. On his appointment as professor of experimental medicine in Cornell University in 1915, he resigned as assistant director of the Memorial Hospital, but continued without interruption his experimental work in cancer. On the declaration of war, he was one of the first to offer his services to the government, and spent the summer at the Medical Officers Training Camp, Fort Benjamin Harrison, Ind., and only a short time ago was detailed as chief of the medical staff of the base hospital at Camp Joseph Wheeler, Macon, Ga., and there he died. At a meeting of the board of trustees of the Memorial Hospital, resolutions were adopted setting forth the attainments of Major Weil, and closing with the following paragraph: "During his brief but brilliant carrer he attained eminence as a devoted laboratory worker, a skilful experimenter, a broadly trained clinician, and a forceful writer, while his untimely death places his name among the first on his Country's honor roll in the Great War."

Lieut. Orlando M. Gochnaur, M. R. C., U. S. Army

Lieut. Orlando Merrill Gochnaur, M. R. C., U. S. Army, Freeport, Ill.; College of Physicians and Surgeons, Chicago, 1915; intern in the Calumet and Hecla Hospital, Calumet, Mich., and later in the Henrotin Memorial Hospital, Chicago; who went to France in September, and was on duty with the British forces in Flanders, is reported to have been killed in action, November 6.

Franklin Paine Mall, M.D., Baltimore; University of Michigan, Ann Arbor, 1883; aged 55; a member of the American Association of Anatomy; a fellow in 1886-1888, and instructor in pathology, 1888-1889, in Johns Hopkins University; adjunct professor of vertebrate anatomy in Clark University, Worcester, Mass., in 1889-1892; professor of anatomy in the University of Chicago, 1892-1893, and since that time professor of anatomy in Johns Hopkins University; who was made director of the Department of Embryology in the Carnegie Institution, Washington, D. C., in 1915; a distinguished anatomist, and a member of many learned societies; a prolific contributor to the literature of his specialty; joint editor of the *Handbuch der Entwicklungsgeschichte des Menschen;* co-editor and one of the founders of the *American Journal of Anatomy* and the *Anatomical Record;* associate editor of the *Journal of Morphology*, and editor of *Studies from the Anatomical Laboratory of Johns Hopkins University;* died in Johns Hopkins Hospital, Baltimore, November 17, after a surgical operation.

James Henry Honan, M.D., Augusta, Ga.; Rush Medical College, 1895; Royal University, Berlin, Germany, 1897; aged 58; an honorary Fellow of the American Medical Association; a specialist in cardiovascular diseases, and from 1909 until the outbreak of the war a practitioner of Berlin and Bad-Nauheim; professor of diseases of the heart and circulatory system in the University of Georgia, Augusta; formerly local surgeon of the Erie Railway; author of a Hand Book of Medical Europe, and a number of treatises on cardiovascular conditions; died at his home, November 11. As a tribute of respect to his memory the Medical College of the University of Georgia was closed on Wednesday, November 14, and the faculty attended the funeral in a body.

Francis LeRoy Satterlee, M.D., New York City; New York University, New York City, 1868; aged 70; a Fellow of the American Medical Association, and New York Academy of Medicine, and a member of the New York Pathological Society; professor of chemistry, materia medica and therapeutics in the New York College of Dentistry since 1869; lecturer on agricultural chemistry and hygiene in the New York College of Veterinary Surgery since 1870; lecturer on physiology and hygiene in his alma mater; for many years major and surgeon of the Eighty-Fourth Infantry, N. G., N. Y., and for eighteen years surgeon to the New York Police Department; attending physician to St. Elizabeth's Hospital; died at his home, November 12, from heart disease.

William Keener Sutherlin, M.D., Shreveport, La.; New York University, New York City, 1881; Kaiser Wilhelm University, Berlin, Germany, 1897; aged 58; formerly a Fellow of the American Medical Association, and once vice president of the Louisiana State Medical Association; a well-known surgeon, and proprietor of Sutherlin's Sanatorium, Shreveport; died in the Schumpert Sanitarium, Shreveport, November 10, from pneumonia.

William Boardman Reed, M.D., Alhambra, Calif., University of Pennsylvania, Philadelphia, 1878; aged 75; formerly a Fellow of the American Medical Association; a veteran of the Civil War, and a well known specialist on diseases of the digestive system; for many years a resident of Atlantic City, N. J.; at one time a member of the editorial staff of the Philadelphia *Press;* who went to California on account of ill health in 1909, and suffered a cerebral hemorrhage in 1913; died at his home, October 31.

John Zebulon Currie, M.D., Cambridge, Mass.; Harvard Medical School, 1873; University of Edinburgh, Scotland, 1874; aged 70; a Fellow of the American Medical Association; physician to the New England Baptist Home for Aged People; died suddenly, from heart disease, November 11, while in his automobile in East Arlington, Mass.

Mary O'Brien Porter, M.D., Chicago; Kansas Medical College, Topeka, 1899; Northwestern University Woman's Medical School, Chicago, 1901; aged 47; a member of the Illinois State Medical Society, and a member of the staff of the Psychopathic Laboratory for the Municipal Courts; died at her home, November 18, from pneumonia.

Thomas Howard Marable, M.D., Clarksville, Tenn.; New York University, New York City, 1878; aged 61; a Fellow of the American Medical Association; mayor of Clarksville;

president of the Tennessee State Medical Association, 1898, and of the Clarksville Academy of Medicine from 1891 to 1893; a specialist in obstetrics; professor of obstetrics in the University of Tennessee, Nashville; died at his home, November 12.

William Gibson Craig, M.D., Springfield, Mass.; Jefferson Medical College, 1892; aged 49; a Fellow of the American Medical Association, and a member of the American Ophthalmological Association; a specialist on diseases of the eye and ear; ophthalmic and aural surgeon to Mercy Hospital, Springfield; died at his home, November 15.

Burrell A. Fletcher, M.D., Augusta, Ark.; Bellevue Hospital Medical College, 1884; aged 55; formerly a Fellow of the American Medical Association; a member of the Arkansas Medical Society, and president of the Arkansas State Board of Health; died in St. Joseph's Hospital, Memphis, Tenn., November 15.

Ira F. Gose, M.D., Eureka, Utah; College of Physicians and Surgeons, Baltimore, 1896; aged 44; formerly a member of the American Medical Association; who was injured when his automobile overturned near Santaquin, November 10; died from his injuries in the Provo (Utah) General Hospital, November 12.

William E. Henkel, M.D., Hammond, La.; Louisville (Ky.) Medical College, 1885; aged 66; formerly local surgeon of the Illinois Central Railroad; died at his home, November 9, from the effects of a gunshot wound of the breast, self-inflicted two days before, it is believed, with suicidal intent, while despondent.

Ansel Jerome Robbins, M.D., McAlester, Okla.; Georgetown University, Washington, D. C., 1891; Southern Homeopathic Medical College, Baltimore, 1896; aged 58; formerly a member of the Arkansas Medical Society, and a resident of Mena, Ark.; died at his home, September 10, from acute gastritis.

William B. Sutherland, M.D., Loveland, Colo.; College of Physicians and Surgeons, Keokuk, Iowa, 1876; aged 66; formerly a Fellow of the American Medical Association; founder of the first hospital in Larimer County, Colo.; died at his home, November 14, from carcinoma of the stomach.

Claude Watson, M.D., Nebraska City, Neb.; Missouri Medical College, St. Louis, 1877; aged 62; a Fellow of the American Medical Association; for twenty years president of the board of education; died, November 16, from heart disease, while making a professional call near Dunbar, Neb.

Alvin Roy Peebles, M.D., Boulder, Colo.; University of Michigan, Ann Arbor, 1906; aged 33; a Fellow of the American Medical Association; professor of preventive and experimental medicine and director of clinical laboratories in the University of Colorado, Boulder; died, October 22.

Jason T. Wallace, M.D., Oneida, N. Y.; New York Homeopathic Medical College, New York City, 1865; aged 81; a member of the first board of education and of the board of health of Oneida; died at the home of his daughter in that city, November 16, from heart disease.

Jacob Cullen Barr, M.D., Keokuk, Iowa; Medical College of Ohio, 1857; aged 87; formerly a member of the Illinois State Medical Society; major and surgeon of the First Ohio Infantry throughout the Civil War; died at his home, November 13, from cerebral hemorrhage.

Jesse D. Elliott, M.D., Hawleyville, Iowa; College of Physicians and Surgeons, Keokuk, Iowa, 1882; aged 65; a member of the Iowa State Medical Society; for one term a member of the state senate; died in a hospital in Moline, Ill., November 11, from malignant disease.

Julius M. Wilhelm, M.D., Traverse City, Mich.; University of Pennsylvania, Philadelphia, 1895; aged 55; a Fellow of the American Medical Association; a veteran of the war with Spain; local surgeon for the Pere Marquette Railroad; died at his home, November 14.

Frank M. Winchester, M.D., Charlotte, N. C.; Jefferson Medical College, 1883; aged 60; formerly a Fellow of the American Medical Association; professor of obstetrics in the North Carolina Medical College, Charlotte; died at his home, November 11.

Frank Blair Lovell, M.D., Gibson City, Ill.; Rush Medical College, 1888; Bellevue Hospital Medical College, 1893; aged 51; a Fellow of the American Medical Association; died in the Presbyterian Hospital, Chicago, November 11, from typhoid fever.

Frank Henry Columbus Zornow, M.D., Pittsford, N. Y.; New York Homeopathic Medical College; New York City, 1917; aged 24; an intern in the Rochester (N. Y.) Homeopathic Hospital; died in that institution, October 25, from diphtheria.

William Fletcher Jolley, M.D., Troupsburg, N. Y.; Eclectic Medical College of Pennsylvania, Philadelphia, 1869; aged 69; a member of the Medical Society of the State of New York; died in the Canandaigua (N. Y.) Health Home, November 8.

Harrison Gabel, M.D., Centerville, Ind.; Central College of Physicians and Surgeons, Indianapolis, 1880; aged 76; formerly a member of the Indiana State Medical Association; died at his home, November 15, from valvular heart disease.

George Edward Turrill, M.D., Cleveland; Homeopathic Hospital College, Cleveland, 1879; aged 63; at one time a member of the staff of the Huron Road Hospital, Cleveland; died at his home, November 13, from cerebral hemorrhage.

William Henry Harrison Asbury, M.D., Clay City, Ind.; Medical College of Ohio, Cincinnati, 1875; aged 77; died in the Post-Graduate Hospital, Chicago, November 11, from hemorrhage, six weeks after operation for prostatectomy.

Louis Charles Winternitz, Baltimore (license, Maryland); a practitioner for fifty-two years; aged 74; formerly a Fellow of the American Medical Association; died at his home in Walbrook, Baltimore, November 9, from senile debility.

Malcolm Stewart, M.D., Tesumseh, Neb.; State University of Iowa, Iowa City, 1884; aged 59; a Fellow of the American Medical Association and a specialist in diseases of the eye, ear, nose and throat; died at his home, November 14.

Marriages

Lieut. Norman Zolla, M. C., Ill. N. G., assigned to One Hundred and Thirty-First Field Hospital Company, Camp Logan, Houston, Texas, to Miss Mary McGinty of Chicago, November 11.

Capt. George Davidson McLean, M. R. C., U. S. Army, Oklahoma City, to Miss Ruth Elizabeth Barnes, also of Oklahoma City, October 21.

Lieut. Harold Bartlett Johnson, M. R. C., U. S. Army, to Miss Maxine Crockett of Nashville, Tenn., in Chattanooga, Tenn., November 3.

Edward R. M. Pennypacker, M.D., Scranton, Pa., to Mrs. Vilette Windett Overly, formerly of Chicago, at Salt Lake City, recently.

Lieut. Stanley Edward Straube, M. R. C., U. S. Army, Fort Oglethorpe, Ga., to Miss Sarah Rollow of Edgoten, Ky., recently.

Lieut. Richard Samuel Magee, M. R. C., U. S. Army, to Miss S. Marguerite Bancroft, both of Altoona, Pa., November 16.

William Howard Eister, M.D., Sunbury, Pa., to Miss Amelia Kublic of Sagon, Pa., at Shamokin, Pa., November 7.

Arthur Franklin Wolford, M.D., Chicago, to Miss Nadine Wiley of Moberly, Mo., at Chicago, November 7.

Lieut. Albro L. Parsons, M. R. C., U. S. Army, to Miss Katherine Barnett, both of Louisville, Ky., November 20.

Samuel Shelton Watkins, M.D., Baltimore, to Miss Mary Townsend of Bowling Green, Ky., November 10.

Wilbur Arthur Baker, M.D., Kansas City, Mo., to Miss Olivia Olsson of Lawrence, Kan., November 3.

Floyd Owen Woodward, M.D., to Miss Alice Margaret Hewson, both of Minneapolis, November 14.

Daniel Clark Brennan, M.D., to Miss Josephine Agnes Winum, both of Akron, Ohio, November 6.

Richards Ellison Amos, M.D., Akron, Ohio, to Miss Hazel McCauley of Ironton, Ohio, November 10.

Benoni Austin Place, M.D., Great Falls, Mont., to Miss Margaret Powell of Clarion, Pa., recently.

Oscar Walter Rest, M.D., Chicago, to Miss Dora Lucile Lake of Madison, Wis., November 21.

Alfred Moore, M.D., to Miss Eva McCleskey, both of Memphis, Tenn., November 21.

James F. Gard, M.D., to Mrs. Sarah A. Mooney, both of Carthage, Mo., November 7.

Karl Albert Meyer, M.D., to Miss Faye Hart, both of Chicago, November 11.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

SOME MISBRANDED MINERAL WATERS

Baldwin Cayuga Mineral Water.—Lucius Baldwin & Son, Cayuga, N. Y., shipped in interstate commerce 60 half-gallon bottles of Baldwin Cayuga Mineral Water. The label claimed that the water was a cure for Bright's disease, diabetes, all kidney afflictions, liver complaints, dyspepsia, all affections of the bladder, all forms of rheumatism and all skin diseases besides being a "Wonderful Tonic for General Debility." These claims the government held were false and fraudulent, and furthermore declared the water was adulterated because "it consisted in whole or in part of a filthy, putrid or decomposed substance." Lucius Baldwin & Son, claimants, consented to a decree, and judgment of condemnation and forfeiture was entered and the court ordered that the water should be destroyed.—[*Notice of Judgment No. 4894.*]

Bowden Lithia Water.—The Bowden Lithia Springs Water Co., an Atlanta, Ga., corporation, shipped a quantity of "Bowden Lithia Water" which was misbranded. Analysis showed this product to be another one of the so-called lithia waters containing practically no lithium. The company pleaded guilty and was fined $50.—[*Notice of Judgment No. 4319.*]

Carbonated Colfax Mineral Water.—The federal authorities filed a libel for the seizure and condemnation of 1,200 bottles of mineral water consigned by D. C. Fry & Co., Inc., Colfax, Iowa. The officials charged that the water was adulterated, as chemical and bacteriologic examination showed it to be polluted and containing excessive numbers of bacteria. It was declared misbranded, first, because it was called a "carbonated" water when, as a matter of fact, it was artificially carbonated and, second, because the following false and fraudulent claims were made regarding its alleged curative value:

> "This water is an infallible remedy for all diseases of the liver, kidneys, and blood. It cures constipation and is the most pleasant and certain promoter of digestion known. Nature's remedy for the cure of every form of indigestion or dyspepsia and acute and chronic rheumatism and now acknowledged to be the most wonderful specific for kidney affections yet discovered."

The government declared that the water contained no ingredients or combination of ingredients capable of producing such therapeutic effects. D. C. Fry & Co., Inc., appeared as claimant and, having interposed no objection to a decree, judgment of condemnation and forfeiture was entered, and the court ordered that the water should be destroyed, that the cases and bottles should be returned to the claimant and that the claimant should pay the costs of the proceedings.—[*Notice of Judgment No. 4888.*]

Chippewa Natural Spring Water.—The government filed a libel for the seizure and condemnation of 3,420 bottles, each containing one-half gallon of "Chippewa Natural Spring Water," sold by the Chippewa Springs Corporation, Chippewa Falls, Wis., charging that the product was misbranded. The label declared in part that this matter was "Beneficial and Remedial in cases of Typhoid Fever, Kidney Diseases, Rheumatism, Gout, Constipation, Indigestion, Headache, etc." These claims the government declared were "feloniously and fraudulently made with the intention to create the impression that the article was efficacious for the treatment of the diseases mentioned, whereas, it contained no ingredient or combination of ingredients capable of producing the therapeutic effects claimed." No claimant appeared for the property and the court entered judgment of condemnation and forfeiture, and ordered that the product should be redelivered to the Chippewa Springs Co., on payment of all the costs of the proceedings and the execution of a bond in the sum of $50.—[*Notice of Judgment No. 4726.*]

Crazy Mineral Water.—One hundred and twenty half-gallon bottles of a water labeled "Crazy No. 3" were declared adulterated by the federal authorities. According to the officials this water which, according to the label, was the product of the Crazy Well Water Company, Mineral Wells, Texas, was adulterated because it contained a filthy, decomposed and putrid animal substance. No claimant appeared, and judgment of condemnation and forfeiture was entered and the court ordered that the product should be destroyed.—[*Notice of Judgment No. 4234.*]

Crystal Lithium Springs Water.—George W. Hamilton, who did business as the Crystal Lithia Water Co., Excelsior Springs, Mo., shipped in interstate commerce a quantity of "Crystal Lithium Spring Water," which was declared adulterated and misbranded. Misbranding was alleged because the label claimed that each gallon of the water contained over 2 grains of lithium chlorid when, as a matter of fact, it contained little, if any, lithium chlorid. Further, the claim that the product was the "Best Water in the Treatment of Bright's Disease, Diabetes . . . Rheumatism and Gravel" was declared recklessly and wantonly false and fraudulent. Adulteration was charged in that the product contained filthy, decomposed and putrid animal or vegetable matter. Hamilton pleaded guilty and was fined $100 and costs.—[*Notice of Judgment No. 4174.*]

Gray Mineral Water.—William Baird and William A. Baird, trading as William Baird & Son, Cambridge Springs, Pa., shipped in interstate commerce a quantity of Gray Mineral Water which the federal authorities declared misbranded. The statement on the label that this product was "Nature's Own Cure" for all diseases of the stomach, liver, bowels and urinary organs, also rheumatism, neuralgia, nervous disorders, etc., was declared false and fraudulent and made in reckless and wanton disregard of its truth or falsity. It was further charged that the claims that Gray Mineral Water was "America's choicest table water unequaled in its crystal clearness, pleasant taste and absolute purity" were false and misleading in that they indicated that the product was a natural mineral water when in fact it was an artificially carbonated mineral water. The government charged further that the claim that the product was "bottled at the Spring" was false and misleading because it indicated that the article was bottled at Gray Mineral Spring when in fact it was not. Finally, misbranding was alleged for the further reason that the quantity of the contents was not plainly and conspicuously marked on the outside of the package. The defendants pleaded guilty and were fined $20 and costs.—[*Notice of Judgment No. 4733.*]

Henk Waukesha Mineral Spring Water.—The Henk Mineral Spring Co., Waukesha, Wis., was the trade name under which Margaret K., Arthur W., Emma, Clarence E. and Mabel Henk operated as co-partners in the sale of "Henk Waukesha Mineral Spring Water." The federal authorities proceeded against these individuals on the ground that their product was misbranded. The government held that the claim that Henk Waukesha Mineral Spring Water "is a most effective remedy for all kidney ailments, Bright's disease in its incipiency" was false and fraudulent and made knowingly and in reckless and wanton disregard of its truth or falsity, because in truth and in fact the water did not contain ingredients or medicinal agents effective as a remedy for all kidney ailments or as a remedy for Bright's disease in its incipiency or at any stage. The defendants pleaded guilty and each was fined $25, making an aggregate of $125.—[*Notice of Judgment No. 4858.*]

Seawright Magnesian Lithia Water.—A libel was filed for the seizure and condemnation of 1,656 bottles of "Seawright Magnesian Lithia Water" which were labeled in part "Seawright Magnesian Lithia Spring Co., Nature's Nervine. E. R. Edmondson, manager, Staunton, Va." Misbranding was alleged. The following therapeutic claims appeared on the bottle:

> "Quiets the nerves and induces sleep. Invaluable in all diseases of the Stomach, Liver or Kidneys, Stone in the Bladder, etc. Relieves Dyspepsia, Constipation, Rheumatism, Gout, etc. A sure remedy for Eruptions and all Diseases of the Skin, Ulcerated Stomach, Sore Eyes, etc."

Misbranding was alleged, first, in that the water did not contain enough lithium to entitle it to be designated as a lithia water; second, it "did not contain any ingredients or combination of ingredients capable of producing the therapeutic effects claimed for it." No claimant having appeared, judgment of condemnation and forfeiture was entered and the court ordered that the product should be destroyed.—[*Notice of Judgment No. 3714.*]

White Stone Lithia Water.—Lloyd C. Dillard of Spartanburg, S. C., the Bank of Spartanburg, the Merchants and Farmers' Bank and the First National Bank were charged by the federal authorities with shipping in violation of the Food and Drugs Act "White Stone Lithia Water" which was misbranded. The charge was based on the fact that the name indicated to the purchaser that the product was lithia water when in fact it was not. Moreover, the label represented that it was a cure for all liver, kidney and bladder troubles, rheumatism, gout, all blood diseases and indigestion. These claims the government declared false and fraudulent. L. C. Dillard, the Bank of Spartanburg, the Merchants and Farmers' Bank and the First National Bank pleaded guilty and the court imposed a fine of $10—or $2.50 each.—[*Notice of Judgment No. 4869.*]

Witter Springs Water.—The government filed a libel for the seizure and condemnation of 324 bottles of Witter Springs Water of the Witter Medicinal Springs, San Francisco, Calif. The officials charged that the water was adulterated in that it consisted in whole or in part of a filthy, decomposed and putrid animal or vegetable substance. No claimant appeared and it was adjudged condemned and forfeited and the court ordered that the product should be destroyed.—[*Notice of Judgment No. 4296.*]

Correspondence

CORNEAL TATTOOING

To the Editor:—The Journal has recently published two contributions on corneal tattooing. It seems to me that almost ideal results can be obtained by a modified Froehlich method, which I have followed in several cases. A von Hippel trephine is used to outline the area to be stained, cutting only through the epithelium and upper lamellae of the cornea. With a keratome this is carefully dissected loose, leaving the flap hanging at one side by a small hinge of tissue. The India or Chinese ink emulsion, worked up in a mercuric chlorid solution, is now applied and the flap turned back in place. A beautiful black round pupil remains. If the operation is performed in this manner, the stain is permanent, as can be shown in a case in which it was done six years ago. Dr. Allport's method is very similar excepting for his failure to replace the epithelium, which protects the color more strongly.

Jesse S. Wyler, M.D., Cincinnati.

LOCALIZATION OF FOREIGN BODIES

To the Editor:—In The Journal, Nov. 3, 1917, p. 1521, Dr. Sinclair Tousey details a method of localization of foreign bodies. On account of his prominence as an author, Dr. Tousey having written a very valuable compilation on the roentgen ray, I think that it is unsafe to let the article referred to pass without question.

Dr. Tousey states that by means of a grating laid on the plate, which merely serves the purpose of a scale for the measurement of the displacement of the shadow cast by a foreign body when the source of illumination casting the shadow is moved, the tube being placed at a distance from the plate of 21 inches and the tube shift of 3 inches being employed, he is able to read from the plate without calculation the actual distance of the foreign body casting a shadow from the surface of the plate.

He further states that a shadow traverse of 1/7 inch with tube at 21 inches and tube shift at 3 inches is equal to ½ inch distance from plate to foreign body; that for each additional 1/7 inch shadow traverse an additional ½ inch should be added to this height or depth according as the tube is over or under the patient. This statement is true when the foreign body keeps such a position that its traverse is exactly 3 inches, and under those circumstances it will be *found to be* exactly midway between the anode of the tube and the surface of the plate. In such circumstances the relation is true because two right angled triangles whose elevations are equal must have equal bases. It is not true for any other position of a foreign body, and the error in such circumstances is enormous.

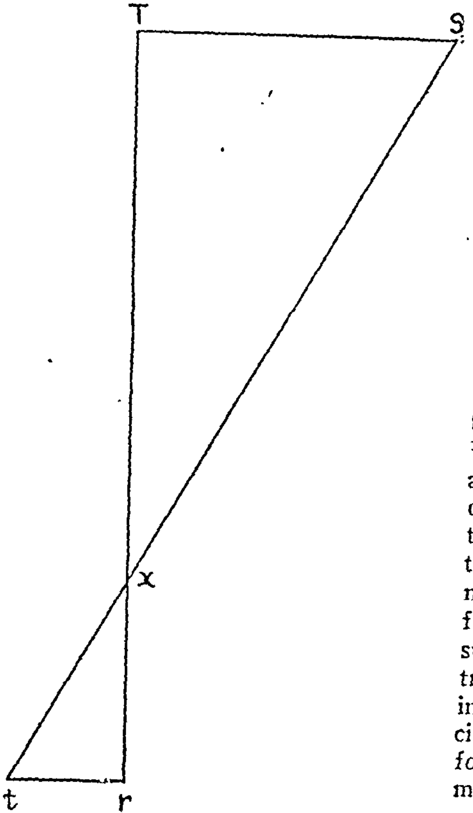

Fig. 1.—Relation of traverses: *TS*, tube traverse; *tr*, traverse of foreign body; *Tr*, anodal plate distance; *xr*, height of foreign body.

$$TS:tr::Tr-xr:xr$$

COMPARISON IN INCHES

Foreign Body Traverse	Depth	
	Tousey	Actual
1/7	0.5	0.9
3/7	1.5	2.6
1	3.5	5.25
1 3/7	5.0	6.7
2	7	8.4
3	10.5	10.5
4	14.0	12.5

Dr. Tousey assumes that the relations here represented may be shown by a simple arithmetical progression, and that if a graph were constructed having foreign body shadow traverse as ordinates, and depth of body in the tissue as abscissas, the relation curve would be a straight line. It

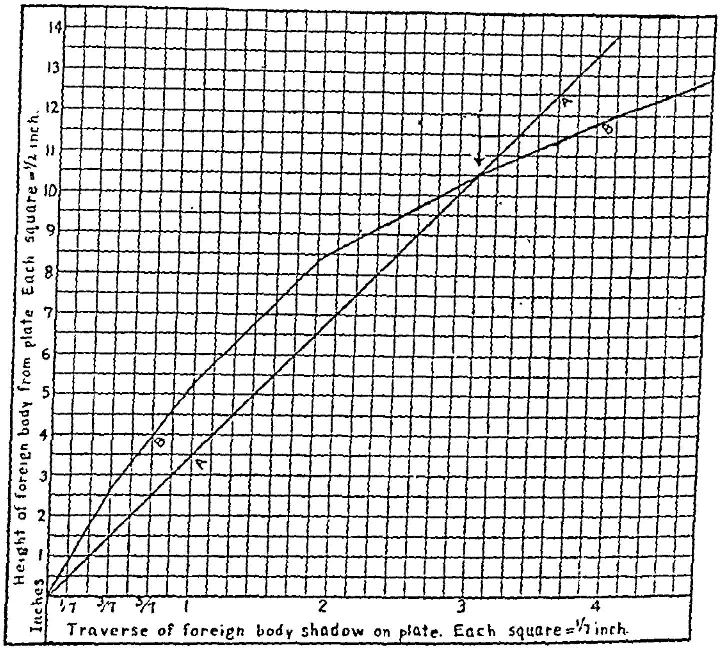

Fig 2.—Comparison of graphs: *A*, Tousey's curve; *B*, actual curve; arrow indicates point at which Tousey's statement is true; anode plate distance, 21 inches; tube shift, 3 inches.

will be found, however, that the line representing this relation is a parabola, which is quite easily constructed.

The true proposition is as follows: Let *TS* equal tube shift; *TR*, traverse of the foreign body; *AD*, anodal plate distance or distance from anode of the tube to the surface of the plate, and *X*, elevation of foreign body in space above plate. Then $Ts : Tr = AD - x : x$.

All that is necessary in order to prove the incorrectness of Dr. Tousey's statement is to assume that the foreign body in Tousey's case has a traverse on the plate of 1 inch. Then by his statement, with a distance of 21 inches and a tube shift of 3 inches this foreign body would lie 7⁄2 inches or 3½ inches in the tissues; whereas, if you solve the equation you will find that the foreign body must occupy a position 5¼ inches from the plate, making an error of 1¾ inches.

George C. Johnston, M.D., Pittsburgh.
Major, M. R. C., Pittsburgh School of Military Roentgenology.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Colorado: Denver, Jan. 8. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

Delaware: Wilmington, Dec. 11-13. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

District of Columbia: Washington, Jan. 8. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

Florida: Jacksonville, Dec. 4-5. Sec., Dr. W. M. Rowlett, Citizens Bank Bldg., Tampa.

Hawaii: Honolulu, Jan. 10-13. Sec., Dr. G. A. Batten, Box 375, Honolulu.

Indiana: Indianapolis, Jan. 8-10. Sec., Dr. Wm. T. Gott, 84 State House, Indianapolis.

Kentucky: Louisville, Dec. 4-6. Sec., Dr. A. T. McCormack, Bowling Green.

Louisiana: New Orleans, Dec. 6-8. Sec. Pro-tem., Dr. E. W. Mahler, 730 Audubon Bldg., New Orleans.

Maryland: Baltimore, Dec. 11. Sec., Dr. J. McP. Scott, 137 W. Washington St., Hagerstown.

Minnesota: St. Paul, Jan. 2-4. Sec., Dr. Thomas McDavitt, 741 Lowry Bldg., St. Paul.

Missouri: St. Louis, Dec. 17-19. Sec., Dr. George H. Jones, 206 Washington St., Jefferson City.

National Board of Medical Examiners: New York City, Jan. 9-17. Sec., Dr. J. S. Rodman, 310 Real Estate Bldg., Broad and Chestnut Sts., Philadelphia.

New Hampshire: Concord, Dec. 10-12. Sec., Dr. W. T. Crosby, Beacon Bldg., Manchester.

New Mexico: Sante Fe, Jan. 14. Sec., Dr. R. K. McClanahan, East Las Vegas.

North Dakota: Grand Forks, Jan. 1. Sec., Dr. G. M. Williamson, Grand Forks.

Ohio: Columbus, Dec. 4-6. Sec. Pro-tem., Dr. Herbert M. Platter, 185 E. State St., Columbus.

Oklahoma: Oklahoma City, Jan. 8-9. Sec., Dr. J. J. Williams, Weatherford.

Oregon: Portland, Jan. 1. Sec., Dr. Herbert S. Nichols, Portland.

Pennsylvania: Philadelphia, Jan. 8-10. Sec., Nathan C. Schaeffer, State Capitol, Harrisburg.

Rhode Island: Providence, Jan. 3. Sec., Dr. B. U. Richards, State House, Providence.

South Dakota: Pierre, Jan. 8. Sec., Dr. P. B. Jenkins, Waubay.

Utah: Salt Lake City, Jan. 7-8. Cor. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

Virginia: Richmond, Dec. 11-14. Sec., Dr. J. W. Preston, McBain Bldg., Roanoke.

Washington: Spokane, Jan. 1. Sec., Dr. C. N. Suttner, Baker Bldg., Walla Walla.

Wisconsin: Madison, Jan. 14. Sec., Dr. J. M. Dodd, 220 E. Second St., Ashland.

Texas June Examination

Dr. M. F. Bettencourt, secretary of the Texas State Board of Medical Examiners, reports the written examination held at Austin, June 19-21, 1917. The examination covered 12 subjects and included 120 questions. An average of 75 per cent. was required to pass. Of the 119 candidates examined, 115, including 9 osteopaths, passed and 4 failed. Forty-one candidates, including 2 osteopaths, were licensed through reciprocity, and 8 candidates were granted reregistration certificates. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
College of Physicians and Surgeons, Los Angeles	(1917)	90
Rush Medical College	(1916)	90
University of Illinois	(1917)	80
University of Louisville	(1917)	80
Tulane University of Louisiana	(1916) 80, 80, 90; (1917)	80, 80
Boston University	(1909)	80
St. Louis College of Physicians and Surgeons	(1914)	80
University of Pennsylvania	(1917)	90
Meharry Medical College (1916) 75; (1917) 75, 80, 80, 80, 80, 80, 80, 80.		
University of Tennessee (1917) 80, 80, 80.		
Vanderbilt University (1889) 75; (1917) 80, 80, 80, 90.		
Baylor University (1910) 75; (1916) 75, 75, 80; (1917) 80, 80, 80, 80, 80, 80, 80, 80, 90.		
Fort Worth School of Medicine (1917) 75, 80, 80, 80, 80, 80, 80, 80, 80, 80, 80, 80, 90, 90, 90.		
University of Texas, (1916) 80, 90; (1917) 75, 80, 80, 80, 80, 80, 80, 80, 80, 80, 80, 80, 80, 80, 80, 80, 80, 80, 80, 80, 80, 80, 80, 80, 80, 80, 80, 80, 80, 80, 80, 80, 80, 90, 90, 90, 90, 90, 90, 90, 90, 90, 90.		
National School of Medicine, Mexico	(1895) 75; (1900)	75
	(1913)	80
School of Medicine of San Luis Potosi	(1908) 80; (1917)	75

FAILED

College	Year Grad.	Per Cent.
Meharry Medical College	(1912) 71; (1915)	66.3
University of Tennessee	(1916)	71.1
Baylor University	(1917)	65.3

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Arkansas Industrial University	(1898)	Arkansas
College of Physicians and Surgeons, Little Rock	(1909)	Oklahoma
University of Arkansas	(1912)	Arkansas
Atlanta College of Physicians and Surgeons	(1909)	Georgia
Atlanta Medical College	(1916, 2)	Georgia
Georgia College of Eclectic Med. and Surgery (1895)	(1909)	Georgia
American College of Medicine and Surgery	(1906)	Nebraska
Chicago Hospital College of Medicine	(1915)	Arkansas
College of Physicians and Surgeons, Chicago	(1906)	Kansas
Northwestern University	(1894)	Nevada
Keokuk Medical College	(1895)	Missouri
Hospital College of Medicine	(1880)	Kentucky
University of Louisville (1904) Oklahoma;	(1909)	Tennessee
	(1915)	Kentucky
Johns Hopkins University	(1914)	Virginia
University of Maryland	(1907)	Maryland
University of Minnesota	(1899)	Minnesota
Barnes Medical College	(1893)	Oklahoma
Kansas City Medical College (1901) Kansas;	(1903)	Missouri
St. Louis University	(1905)	Oklahoma
University Medical College of Kansas City	(1904)	Missouri
Eclectic Medical College	(1892)	Ohio
Meharry Medical College (1913) Oklahoma; (1915) Kentucky,		Tennessee
Memphis Hospital Medical College	(1902)	Mississippi
	(1910)	Oklahoma
University of Tennessee (1893) Tennessee;	(1914)	Mississippi
Vanderbilt University (1888) Arkansas;	(1900)	Tennessee
(1913) Mississippi;	(1916, 2)	Tennessee
University of Vermont	(1904)	Vermont

Delaware June Examination

Dr. H. W. Briggs, secretary of the Medical Council of Delaware, reports the written and practical examination held at Wilmington, June 19-21, 1917. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Nine candidates were examined, all of whom passed. Two candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Johns Hopkins University	(1916)	85.9
New York Homeo. Medical Coll. and Flower Hospital	(1917) 88,	90
Jefferson Medical Colege. of Philadelphia (1916) 89.1,	(1917) 83,	86.7
Medico-Chirurgical College of Philadelphia	(1916) 80.6,	86.7
Temple University	(1917)	80.5

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
University of Pennsylvania (1898)	(1913)	Penna.

Oregon July Examination

Dr. H. S. Nichols, secretary of the Oregon State Board of Medical Examiners, reports the written examination held at Portland, July 5-7, 1917. The examination covered 15 subjects and included 104 questions. An average of 75 per cent. was required to pass. Of the 21 candidates examined, 18, including 1 osteopath, passed, and 3, including 2 osteopaths failed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
College of Physicians and Surgeons, San Francisco	(1916)	83
Chaddock School of Medicine	(1887)	76
Northwestern University	(1902)	80
Keokuk Medical College	(1893)	76
Maryland Medical College	(1905)	77
Johns Hopkins University	(1917)	90
Harvard University	(1912)	80
St. Louis University	(1905)	76
Washington University	(1901)	81
Cincinnati College of Medicine and Surgery	(1900)	78
University of Oregon (1917) 80, 81, 83.		
Willamette University	(1906)	76
Jefferson Medical College of Philadelphia	(1902) 79; (1915)	77
Tennessee Medical College	(1901)	75

FAILED

College	Year Grad.	Per Cent.
John A. Creighton Medical College	(1917)	86

Book Notices

Obstetrics: A Text-Book for the Use of Students or Practitioners. By J. Whitridge Williams, Professor of Obstetrics, Johns Hopkins University. Fourth Edition. Cloth. Price, $7 net. Pp. 1029, with 708 illustrations. New York: D. Appleton & Co., 1917.

Five years have elapsed since the appearance of the last edition of this book. During that time, notable changes have taken place in the views held on some phases of obstetrics, even though no definite progress has been made. The author discusses this phase of the subject, and expresses opinions which, coming from a man of his standing, are not only worthy of consideration, but are significant and weight-bearing. Anesthesia in obstetrics has received much attention during the past five years. Williams endorses the use of nitrous oxid gas, but feels that it should be limited to the second stage. As for scopolamin-morphin anesthesia, he says the fact that we cannot promise a satisfactory subjective result to more than three patients out of four makes it apparent that the method is not ideal. He believes that it will gradually fall into disuse, or at least that its use will be restricted to a small group of neurotic patients. From his experience the method is not adapted to private practice. He is strongly opposed to lumbar anesthesia. His preference in normal labor is chloroform. The value of complicated chemical methods in determining the prognosis and treatment of preeclamptic toxemia and eclampsia is discounted by the author. He says that while the clinical differentiation between the nephritic and the preeclamptic types of toxemia is not always easy, fortunately the difficulty in diagnosis is of more importance from the scientific than from the practical point of view, as the treatment to be employed is identical in the two cases. While he regards the Abderhalden pregnancy reaction as one of the important recent contributions to medicine, he does not believe that it is destined to come into extensive practical use because, first, its technic is complicated; second, the results fail to correspond with the clinical findings in 5 or 10 per cent. of the cases, and third, it is valuable only in normal pregnancy. In speaking of pituitary extract, he says that his experience has shown that the judicious administration of the drug will do away with the necessity for the application of low forceps in from one third to one half of the cases in which this method was formerly employed; but he urges that great care should be exercised in the use of pituitary extract, as its injudicious employment may place the life of both mother and child in jeopardy. Furthermore, the claims made by several manufacturers concerning its harmlessness are inaccurate and extremely reprehensible, as they are calculated to lead inexperienced practitioners into therapeutic excess to the detriment of their patients. He believes that eventually the use of pituitary extract will be limited to the latter part of the second stage, and this only as a competitor with low forceps. The present revision will maintain the high standard of this work as a practical up-to-date guide to the obstetrician. Many new illustrations have been added. The bibliography given at the end of each chapter is valuable; it bears all the earmarks of having been verified.

Pain and Pleasure. By Henry Thomas Moore, Ph.D., Assistant Professor of Psychology, Dartmouth College. Cloth. Price, $1.25 net. Pp. 174, with 11 illustrations. New York: Moffat, Yard & Co., 1917.

The author states that pain may be described as of three fairly distinct types—surface pain, distinguished by sharp clearness, exactness of location and well coordinated reaction; bodily distress, characterized by obscure dulness, difficulty of exact location, and a general and somewhat aimless bodily reaction; and unpleasantness, marked by such obscurity that it is commonly spoken of as feeling. It has no particular location, but seems to pervade the whole body. Pleasure may be derived from stimulation of the surface of the body; gratification is the pleasure derived from satisfying the needs of the inner organs, a form of which is distinctly experienced for each of the body needs; then there is pleasantness, which is least capable of exact location or definition. Pain and pleasure as sensations have probably been evolved gradually out of a primitive obscure state of well-being, or pleasantness, and malaise, or unpleasantness. All three varieties of pain and pleasure described can be best accounted for by reference to the fact that every living organism is born with the capacity for struggle, and in an environment in which struggle is a fundamental law of nature. Pain signifies either that the environment has demanded too much of the organism's limited capacities, or that it has failed to offer a point of contact for unused activity. Pleasure signifies either that the environment has furnished occasion for a conflict to which the organism's powers are equal, or that opportunity is being afforded for recovery from a struggle carried to an extreme point—the pleasure of rest, for instance. As to the diagnostic value of pain, it is said that pain is the physician's most reliable dependence as a means of diagnosis, but it is necessary to have perpetually in mind the possibility that a given pain may be "imaginary" (psychasthenic or neurasthenic) or "referred" (giving a false indication as to the real source of the trouble). The former source of error can, in a measure, be guarded against by tests of suggestibility, by noting the change of facial expression, of blood pressure and of the pupil reflex. The author concludes what is an interesting psychologic study of pleasure and pain by saying, "Whether as sensation or as feeling, the broad significance of pain and pleasure is to be found in the fact that life is essentially a struggle, in which pleasure is the accompaniment of some form of mental or physical success, and pain is an indication of defeat or of abortive effort."

Health Survey of New Haven. A Report Presented to the Civic Federation of New Haven by Charles Edward Amory Winslow, James Cowan Greenway and David Greenburg of Yale University. Paper. Price, 75 cents. Pp. 114, with 30 illustrations. New Haven: Yale University Press, 1917.

This book deals with public health conditions in New Haven, and recommendations for their improvement. The report is unusually free from destructive criticism. Under each heading, conditions existing at the time of the investigation are given, followed by an analysis and specific recommendations for improvement. Forty-five such recommendations are made on the basis of the author's findings, following approved methods of public health administration but adapted to New Haven's needs. Such a report made by trained men should be of value to other cities as a guide in efficient organization and modern methods of public health administration. The authors have pointed out that New Haven is getting good service for the money expended, but that this amount needs to be increased from 30 cents per capita to 50 cents to secure the best results.

Psychological Tests. A Bibliography. Compiled by Helen Boardman, Research Worker for the Bureau of Educational Experiments. Paper. Price, 25 cents. Pp. 75. New York: Bureau of Educational Experiments, 1917.

While this is not an exhaustive bibliography, it is a very useful one; for the articles on this subject are numerous, and widely scattered through medical, psychologic and pedagogic journals. Each entry is followed by a brief annotation giving the scope of the article. The bibliography would present a much better appearance if the references were uniform in style. The volume number is given sometimes in Arabic and sometimes in Roman, and the date of the publication in some places precedes the volume and page and again follows it.

The Treatment of Emergencies. By Hubley R. Owen, M.D., Surgeon to the Philadelphia General Hospital. Cloth. Price, $2 net. Pp. 350, with 249 illustrations. Philadelphia: W. B. Saunders Company, 1917.

This book is essentially an enlargement of the author's lectures to policemen, firemen and nurses, and as such it is a commendable addition to first aid work, especially for all those, whether professional or lay, who wish to make a more comprehensive study of the subject. The author has aimed, in each instance, to give the underlying principle of each dressing and the reason for a particular method of application. The language used is plain and clearly descriptive, and no exception can be taken to the treatment of the subject or the correctness of the teachings.

Social Medicine, Medical Economics and Miscellany

Welfare of Mothers and Children in Ireland

The birth rate in Ireland has been diminishing for the past ten years; in 1915 there were 3,000 fewer births than in 1914, perhaps partly the result of conditions connected with the war. The deaths of children under 1 year for 1915 were 92 per thousand. In England during the same year the number was 110 per thousand, and in Scotland 126. While the figures for Ireland seem, therefore, to be better than those for England and Scotland, the comfort to be derived from them is diminished by the knowledge that in England and Scotland there has been a steady, rather rapid decline in the deaths under 1 year, whereas in Ireland the rate has remained almost stationary for many years.

These facts, together with many others regarding the welfare of mothers and children in Ireland, are set forth in the report of the Carnegie United Kingdom Trust on Ireland (1917) written by Dr. E. Coey Bigger, medical commissioner of the Local Government Board for Ireland. While the decline in the death rate in England among infants under 1 year has been 24 per cent., in Ireland it has not amounted to over 8 per cent., the actual figures for this age being for Ireland, 1891-1900, 104; 1901-1910, 96, and 1911-1915, 91, and for those from 1 to 4 years of age, 88.7, 58.9 and 52.5, respectively. The chief causes assigned are low wages and the low standard of living or downright poverty of a large proportion of the population; bad housing in city and country; increase in the urbanization of the population, with higher consequent death rate, and decline in breast nursing on account of the lowered vitality of mothers due to improper nourishment, the defective condition and deficiency of the milk supply, which is general throughout Ireland, the lack of knowledge of mothercraft, etc.

The greater death rate among infants of the laboring classes, the low wage earners, is marked and distinct, and its relation to the quantity and quality of the diet of the people is indicated in the following:

> For the past twenty years the available income of both laborers and farmers has risen, but the cost of food has, at the same time, risen and its nature has changed. Milk porridge and potatoes were once the staple food of the laboring and farming class; now it is bread and tea and potatoes—a change very much for the worse, and one which is bound to react on the infant by making the mother less fit to bear her child, and to suckle it when born.

The report shows that some progress is being made in improving the housing conditions, in better hospitalization, better reporting, better nursing and enlightenment with regard to artificial feeding, and in general welfare work by various organizations.

Report of New York Committee on Feeblemindedness

The New York Committee on Feeblemindedness, which was organized in March, 1916, under the chairmanship of R. Bayard Cutting, is carrying on a campaign in New York State to secure adequate provision for the care, supervision and training of the feebleminded and epileptic. The aims of the committee, as set forth in its first annual report, are to improve the usefulness of the state institutions for the benefit of the feebleminded, to further the establishment of special classes in the public schools, and to aid in the establishment of a system of guardianship and supervision in the home. Preventive measures, of course, are prominent in the committee's aims. To attain these objects, the committee is working along the following lines: the gathering and dissemination of information concerning the feebleminded; organization and leadership of individual effort and social agencies, and promotion of legislation.

A conservative estimate gives the number of feebleminded persons in New York State as 35,000, of whom 6,000 are provided for in proper institutions; 4,500 are detained in almshouses and jails without appropriate care, and over 24,000 are unprotected in the community, are the bearers of disease, and live in a state of poverty and degradation. It is shown that from 20 to 30 per cent. of the inmates of correctional institutions are mentally defective, and studies of habitual offenders show that nearly one half of all crime can be laid at the door of feeblemindedness. It has been estimated that 2 per cent. of the children in the public schools are retarded to such a degree as to constitute feeblemindedness. One of the great causes of feeblemindedness is heredity, and the birth rate among the mental defectives is found to be approximately twice that of the normal population. Prevention of marriage of feebleminded persons would reduce immediately the proportion of the feebleminded, paupers, criminals and no-account persons. It is said that the only means of accomplishing this which is agreeable to the sensibilities of the average citizen is segregation and institutional care. It is along these lines that the committee has been directing its efforts.

Medicolegal

Insufficient Information Under Statute Defining Practice of Medicine

(People vs. Watson (Mich.), 162 N. W. R. 943)

The Supreme Court of Michigan holds that the verdict should be set aside, and the defendant discharged in a case in which his conviction was under an information that alleged that he "unlawfully did engage in the business of practice of medicine, and did practice medicine, within the meaning of Act 237 of the Public Acts of the state of Michigan for the year 1899, and the amendments thereto, without before so doing having complied with the provisions of said act" and its amendments, etc. The court says that the information was bad because (1) the general words employed therein do not fully set forth all of the assignments necessary to constitute the offense; (2) the subject-matter of the offense is now defined by the statute by descriptive words, none of which are employed in the information; (3) a person may innocently do things embraced within the definition given in the statute.

Act 237, Public Acts of 1899, was amended by Act 368, Public Acts of 1913, so as to define the practice of medicine. Under former legislation it had been left to the courts to define—piecemeal, it is true, but nevertheless to define—what was the practice of medicine, by determining whether the proved acts of the person accused of violating the statute amounted to practicing medicine. The legislature undertook to make an exclusive and inclusive definition by enacting: "In this act, unless otherwise provided, the term 'practice of medicine' shall mean the actual diagnosing, curing or relieving in any degree, or professing or attempting to diagnose, treat, cure or relieve any human disease, ailment, defect or complaint, whether of physical or mental origin, by attendance or by advice, or by prescribing or furnishing any drug, medicine, appliance, manipulation or method, or by any therapeutic agent whatsoever." Here are the elements of the statute offense, a catalogue of the acts constituting "practice of medicine," the doing of which makes the actor liable to the statute penalty. Under such an act, to charge one generally with "practicing medicine" is not to charge him sufficiently with a wrongful act. Moreover, the foregoing statute definition is itself limited by the title of the act and the measure of the police power of the state. Some things within this statute category may be innocently done.

It will at once be perceived that the information before the court may or may not charge the defendant with committing an offense, in view of the definition of "practice of medicine" found in the act and the proper scope of the act, as evidenced and limited by its title; because, since the act has been sustained as valid on certain limitations of the definition, it is no longer sufficient to charge one with engaging in the business of practicing and with practicing medicine, contrary to the provision of the statute—the law having been held valid only when applied to such acts enumerated therein as "in common acceptation and as generally construed by the courts" are regarded as engaging in the "practice of medicine." The rule that in indictments and informations for offenses created by statute it is sufficient to describe the offense in the words of the statute, and that when the words of the statute are descriptive of the offense it is safe to follow the language there used, is a rule that was not observed by the pleader, since the descriptive words found in the present statute are not used in the information. Moreover, so long as a person may innocently do some things embraced within the definition given in this particular statute, there is additional reason for particularity of statement of the acts committed in order to apprise the accused of the charge sought to be brought against him.

Combining Faith with "Patent Medicines"

(People vs. Vogelgesang (N. Y.), 116 N. E. R. 977)

The Court of Appeals of New York, in affirming a judgment of conviction of the defendant of having illegally practiced medicine, says he claimed he was a spiritualist and had practiced the religious tenets of his church. If that was all he did, he acted within his rights. The court, however, thinks he did more. In February, 1915, one Haldeman, then suffering from heart disease, visited the defendant's office. He paid four visits there, and received three visits at his own home. He died the next month. The defendant rubbed his body with a liniment, and gave him medicine for internal use. All this was done for pay. The patient's wife accompanied him to the office. She said the defendant never uttered a word about spiritualism. The defendant handed to his patient a pamphlet, the title on the cover of which gave the defendant's name, and added the words: "Specialist in all forms of chronic diseases; strictly confidential; consultation free." Within the covers was a sketch of the defendant's life. It told that, when 11 years old, "he would get herbs and give them to sick people, for he seemed to know what would be good for them." In later years the Erie County Medical Society complained of him, and a fine was imposed. "After that," said the sketch, "he joined the New York State Association of Spiritualists." The sketch was followed by many testimonials from patients. All, or nearly all, acclaimed the virtue of his medicines. Not one of them betrayed a consciousness that the supposed cure had been wrought through the power of religion. This was the pamphlet by which the defendant accredited himself to Haldeman. One cannot find here the picture of the religious devotee. One can find only the picture of the unlicensed medical practitioner. The picture was not changed by the defendant's testimony. On the stand he characterized himself as a therapeutic and spiritualist healer and dealer in "patent medicines." He had patented them himself. He used a liniment, compounded of angleworms, turpentine, sweet oil and benzin. He said that, while massaging the patient with this liniment, he indulged in silent prayer. He also prescribed for internal use a medicine compounded of wine, beef tea and citrate of iron. The same medicine was used for every one. He argued that all this must be excused, because he had become a member of the spiritualist church, and had been commissioned by that church as a spiritual healer.

The New York statute prohibits the practice of medicine without a license, but excepts from its prohibition "the practice of the religious tenets of any church." This court held in *People* v. *Cole,* 219 N. Y. 98, 113 N. E. 790, that the exception protected the practitioners of Christian Science, who taught as part of their religion the healing power of mind. Even then the court said there were times when the question of their good faith must be submitted to a jury. But things were done by this defendant which no good faith could justify. He combined faith with "patent medicine." If he invoked the power of spirit, he did not forget to prescribe his drugs. "It is beyond all question or dispute," said Voltaire, "that magic words and ceremonies are quite capable of most effectually destroying a whole flock of sheep, if the words be accompanied by a sufficient quantity of arsenic." The law, in its protection of believers, has other cures in mind. The tenets to which it accords freedom, alike of practice and of profession, are not merely the tenets, but the religious tenets, of a church. The profession and the practice of the religion must be itself the cure. The sufferer's mind must be brought into submission to the infinite mind, and in this must be the healing. The operation of the power of spirit must be, not indirect and remote, but direct and immediate. If that were not so, a body of men who claimed divine inspiration might prescribe drugs and perform surgical operations under cover of the law. The law exacts no license for ministration by prayer or by the power of religion. But one who heals by other agencies must have the training of the expert.

Liability for Sponge and Silk Thread in Wound—Evidence

(Wynne et ux. vs. Harvey et al. (Wash.), 165 Pac. R. 67)

The Supreme Court of Washington says that in this action against the physicians and a nurse for alleged malpractice in connection with an operation on Mrs. Wynne for an enlarged uterus, after a trial of the case on the merits, a motion for nonsuit was granted as to the nurse, but a verdict for $5,000 was entered against the physicians. Now the action is ordered dismissed as to the assistant physician or surgeon, with costs to him, while the judgment is affirmed as to the physician or surgeon in chief.

The operation did not seem to be very successful, as the wound refused to heal and a fistula was formed, which discharged impure matter, including a silk thread. Afterward, through another operation, a small mop sponge was found, next to the inside of the abdominal wall. Defendant Harvey had been treating the plaintiff for some time prior to the first operation, but on account of the seriousness of the operation it was decided he should have an assistant, and the other physician was employed in that capacity, by Mr. Wynne. In cases of this character, the rule concerning the liability of two physicians independently engaged has been well stated to be that each, in serving with the other, is rightly held answerable for his own conduct, and as well for all the wrongful acts or omissions of the other, which in the exercise of reasonable diligence under the circumstances he should have observed. The evidence showed that this assistant had nothing to do with the sponges or mopping with them on the inside of the incision. It is obvious that he would not be liable for this negligence because of any wrongful act of his own. His activities were confined mainly to the outside of the wound, and, since the duties of an assistant are to do as directed by the chief operator, and there was no showing either that he was directed to keep track of the sponges or that it was made his duty by custom to do so, it is apparent that, in the exercise of reasonable diligence under the circumstances, no duty devolved on him to discover that the sponge was not removed, the omission of which would render him liable to an action for damages.

In considering the appeal of defendant Harvey, the court found that the complaint alleged negligence in the use of silk thread, instead of catgut, in tying off the arteries, and the only evidence to sustain this allegation was that a piece of silk thread was discharged through the fistula that formed in the plaintiff's body. Impliedly admitting that it was improper to use silk in tying off arteries, and to explain its presence, defendant Harvey claimed that it was used in suturing a ruptured intestine, and produced evidence to show that in so doing silk was the proper and better material to use. But while there was no direct evidence to show that silk was negligently used in tying off arteries, there was evidence to show that silk was negligently used, as the thread discharged through the fistula was No. 12, which, according to the testimony of the experts, was far too large for use in suturing a ruptured intestine, the majority of the experts being of the opinion that in no event should silk thread of larger size than No. 3 or No. 4 be used for this purpose. Precisely what use was made of the silk thread, and where, was manifestly unknown to the plaintiff, save by results. The exact place and manner were known to defendant Harvey, who used it, and he was chargeable with reasonable care, skill and knowledge in its use. The court does not consider this evidence a material variance from the allegations of the complaint, and there was, therefore, sufficient evidence to submit this issue to the jury's consideration.

There being no evidence in the record that the sponges were counted by the attending nurses, or that defendant Harvey knew there was another sponge in the incision, the facts in this case did not bring it within the asserted exception that it is not negligence for a surgeon to leave a foreign substance in a wound when in his professional judgment further exploration for such foreign substance would endanger the safety of the patient.

The plaintiff could testify to such commonplace conditions and effects as that dressings were sometimes changed by defendant Harvey and sometimes by a nurse; that sometimes he would not come when requested; that sometimes dressings were not changed and pus would dry on them, and that the drainage tubes were not sterilized every time the dressings were changed.

Society Proceedings

COMING MEETINGS

American Association of Anatomists, Minneapolis, Dec. 27-29.
American Physiological Society, Minneapolis, Dec. 27-29.
Porto Rico Medical Association, San Juan, Dec. 22-23.
Society of American Bacteriologists, Washington, D. C., Dec. 27-29.
Western Surgical Association, Omaha, Dec. 14-15.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION

Annual meeting, held at Toledo, Ohio, Oct. 9-11, 1917

The President, Dr. Channing W. Barrett, Chicago, in the Chair

What Reliance Can Be Placed in Our Laboratory Findings in Central Nerve Syphilis?

Dr. Albert E. Sterne, Indianapolis: A positive Wassermann test of the blood, and especially of the spinal fluid, spells syphilis and syphilis only; but a negative serum Wassermann, and even a negative spinal fluid Wassermann, does not strictly indicate the absence of syphilis. Laboratory tests are merely clinical signs, which at times may be present or absent, like other symptoms; spinal fluid tests should always be made with blood serum tests, and their correct interpretation can be made only by weighing carefully the clinical evidence, with the serologic report, especially when the latter are negative. The laboratory findings should fit into the clinical syndrome, and not vice versa.

Intensive Combined Treatment of Syphilis

Dr. J. H. Stokes, Rochester, Minn.: We have come to regard the effect of mercury on the kidney as the weak point in radical methods in the management of syphilis. This applies with special force to the intramuscular injection, and especially to the injection of insoluble mercurial salt, the convenience of which may easily be counterbalanced by much damage that goes undetected because of the irksomeness, to the majority of physicians, of the frequent, careful urinalysis. Radical treatment is indispensable; therefore, means to protect the kidney, especially, from its very real dangers should be devised.

Some Recent Developments in Intraspinal Therapy

Dr. Oscar Berghausen, St. Louis: In the treatment of epidemic meningitis, no one who has followed the results carefully will dispute the advantages to be gained by the withdrawal of the spinal fluid and subsequent introduction of the specific serum in these patients. The mortality is now, roughly speaking, about 50 per cent. in public institutions, whereas formerly it was 75 per cent. The combined intravenous and intraspinal injection of antitetanic serum has the advantage of sending the serum to all parts of the body. The former enormous doses are not necessary. Much smaller amounts will suffice, if the serum is used both intraspinally and intravenously. In the treatment of syphilis of the central nervous system, simple drainage of the subarachnoid space, or drainage plus the introduction of a normal serum, or a serum to which minimal amounts of salvarsan have been added, not to exceed from 0.1 to 0.5 mg., is a safe and sound procedure.

DISCUSSION

Dr. Hugh T. Patrick, Chicago: It is important that our serologic examinations should be made by men who are laboratory experts. We should not consider any evidence, however negative it may be, as evidence of cure. Any patient with syphilis who has been cured temporarily and has apparently become entirely well should be subjected to reexamination, not the ordinary clinical examination, but examination of the blood and also of the spinal fluid every six months for a considerable time.

Dr. R. B. H. Gradwohl, St. Louis: The whole question of the Wassermann reaction in the treatment of syphilis is a complicated one. While it is a very useful test as a diagnostic measure, as a prognostic measure, as a guide for treatment, we cannot always make deductions mathematically from it.

Dr. F. B. Wynn, Indianapolis: The inunction treatment is the most effective form of mercurial treatment, although the injection treatment is the most popular.

Goiter from the Standpoint of the Pathologist

Dr. Louis B. Wilson, Rochester, Minn.: Most of the malignant tumors of the thyroid have their origin in nodular adenomas which are usually passed over as benign. When we consider that the metastases from such cases are frequently in the lungs, and that both from the clinical and the gross anatomic standpoint they are difficult to distinguish from miliary tuberculosis of the lungs, I am convinced that many of them are diagnosed as the latter affection when in reality they are due to malignant neoplasms primary in the thyroid. Unless a necropsy is performed in such cases, the clinical diagnosis is of little value.

Goiter from the Standpoint of the General Practitioner

Dr. Granville N. Ryan, Des Moines, Iowa: One must keept in mind constantly the individuality and personal equation of each patient. A complete and painstaking history is most essential. The parenchymatous varieties that occur in the young are the most amenable to medical treatment, if not of too long standing. If degeneration has occurred in a case of long standing, the case is a medical one until the damage is repaired and the patient is surgically fit. In hyperthyroidism, the end result desired can be attained only by team work.

Goiter from the Standpoint of the Laryngologist

Dr. Joseph C. Beck, Chicago: The thyroid, so far as the laryngologist is concerned, is considered only when it produces pressure, causing either paresis or paralysis of the muscles supplied by the recurrent laryngeal nerve, or tracheal compression. Another aspect to be considered in cases of chronic infection of the upper respiratory tract producing a thyroid gland change is that of the toxemias acting on the autonomic nervous system, which changes the harmonic action of the various glands of internal secretion so as to produce thyroid disease. The advanced laryngologist, the laryngologist who has had a thorough training in general surgical principles, should encroach on this phase of surgery, especially when there are symptoms referable to the larynx and trachea.

The Heart in Goiter

Dr. Robert H. Babcock, Chicago: The treatment of mechanical derangements is surgical. In the toxic form, the treatment must also be directed to the thyroid rather than to the heart, except in certain cases in which treatment of the heart condition is understood. Our usual medicaments, such as digitalis, exert very little effect on the goiter heart, sometimes actually increasing the discomfort from palpitation. Rest, mental and physical rest, in proper environment, and careful diet are, perhaps, the best measures to allay the unpleasant sensation of palpitation. I have found that in some cases tincture of aconite, in doses of from 20 to 30 minims, three or four times a day, considerably lessens the patient's sense of discomfort. On the whole, however, except so far as we may obtain some relief from the use of serum or preparations from thyroidectomized goats, the treatment is surgical.

Surgery of Exophthalmic Goiter

Dr. Harry G. Sloan, Cleveland: Once the diagnosis of exophthalmic goiter is made, we advise operation. We put the patients to bed so that they may have absolute physical rest; we overfeed them, keep them in the fresh air as much as possible, and see that proper elimination from bowels and kidneys is obtained. The patient is given 10 grains of thyroid extract the evening before operation, and after operation 5 grains, every two hours, for the first day and a half. The body tissues have been depending on the secretion of the thyroid for some substance that aids in the oxidation of the waste product, and the sudden removal of the thyroid handicaps the organism until compensation takes place. Hence the substitution of thyroid extract. The immediate after-results vary with the severity of the disease and the length of time it has existed. All patients who recover after thyroidectomy are improved or permanently cured.

Nonsyphilitic Aortitis

Dr. Willard C. Stoner, Cleveland: It is accepted that acute infections, such as influenza and pneumonia, play no small part in producing aortitis. The intoxicants, such as alcohol, lead and tobacco, play some part, but no doubt alcohol is overestimated as a cause. Overeating as a cause of vascular hypertension and vascular disease cannot be overestimated. Anything that tends to overactivity of the suprarenals tends to vascular disease. Chronic foci of infection, such as bad teeth or tonsils, may be responsible for arterial change. Rheumatic fever may cause aortitis in association with valvular disease, and aortic changes are reported frequently as a result of typhoid. The question arises, What can be done for these patients? We cannot give them new aortas, but we can give them comfort. Absolute rest in bed for a period of time has a distinct value in the lowering of tension. All worry and strenuousness in life should be avoided. Encouragement of elimination and low protein diet should be advised, and if the patient is obese, weight should be reduced. Medicinally, iodids and nitrites are indicated. If the process is acute, direct therapy should be instituted for the general condition, bearing in mind that these patients are to be managed rather than treated.

The Value of the Complement Fixation Test in the Diagnosis of Incipient Tuberculosis

Dr. R. B. H. Gradwohl, St. Louis: The complement fixation test is absolutely specific for tuberculosis. It is not always present in all cases, and it seems to disappear when the process subsides. This test will be found a valuable addition to the diagnostic aids of the clinician. We have very few data on which to base a conclusion that negative reactions mean arrest of tuberculous processes. The observation of the patient over long periods of time must still remain the proper method of adjudicating this question.

Cancer Research in Switzerland.—The Swiss Cancer Research Association is appealing to the physicians of Switzerland to fill out a question blank which is being distributed to obtain data on mammary cancer. The appeal states that Switzerland is one of the countries where cancer is most prevalent, and cancer of the breast in particular seems to be on the increase. Physicians are asked to supply the data in regard to all the cases of mammary cancer encountered in the five years ending with 1915, cured or still under treatment at this date. For each response a fee of 40 cents is paid. Each physician who made out a death certificate during those years in a case of mammary cancer will be sent a question blank. The points to be specially noted are the influence of lactation, of preceding inflammatory affections or benign tumors, the influence of operative treatment on the prognosis in general and on metastasis in particular, and the actual value of roentgen and radioactive treatment.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Insanity, Baltimore

October, LXXIV, No. 2

1 Development of Personality. E. G. Conklin, Princeton, N. J.—p. 123.
2 Wider Field of Activity for Association. J. V. May, North Grafton, Mass.—p. 129.
3 Ought Limited Responsibility to be Recognized by Courts? C. P. Bancroft, Concord, N. H.—p. 139.
4 Need of Closer Relationship Between Psychiatry and Medical Schools. A. H. Ruggles, Providence, R. I.—p. 149.
5 Psychiatric Problems at Large. A. J. Rosanoff, Kings Park, N. Y.—p. 157.
6 Aims and Meaning of Psychiatric Diagnosis. A. Meyer, Baltimore.—p. 163.
7 Study of Self Accusation. E. D. Bond, Philadelphia.—p. 169.
8 Certain Clinical Aspects of Late Katatonia; Report of Cases. E. A. Strecker, Philadelphia.—p. 185.

American Journal of Syphilis, St. Louis

October, I, No. 4

9 *Syphilis of Pulmonary Artery: Aneurysm of Left Upper Division; Spirochaeta Pallida in Wall of Artery and Aneurysmal Sac. A. S. Warthin, Ann Arbor, Mich.—p. 693.
10 *Latent or Clinically Inactive Syphilis in Canal Zone. G. L. Qualls, Ancon, C. Z.—p. 712.
11 Comparison of Some of Important Phenomena in Syphilis and Tuberculosis. F. M. Pottenger, Monrovia, Calif.—p. 718.
12 Behavior of Lymphatic System in Syphilis. D. W. Montgomery, San Francisco.—p. 729.
13 Syphilis of Liver. H. L. McNeil, Galveston, Texas.—p. 738.
14 *Causes of Arterial Hypertension, with Special Reference to Syphilis—Clinical Inquiry. J. S. McLester, Birmingham, Ala.—p. 746.
15 Syphilis as Cause of Chronic Urticaria. H. H. Hazen, Washington, D. C.—p. 750.
16 Advisability of Prostatectomy in Presence of Cord Lesion: Report of Cases. E. S. Judd and W. F. Braasch, Rochester, Minn.—p. 752.
17 *Roentgen Diagnosis of Lung Syphilis. W. W. Watkins, Phoenix, Ariz.—p. 760.
18 Proposed Standardization of Wassermann Reaction. A. W. Stillians, Chicago.—p. 767.
19 *Wassermann Reaction in Four Hundred Cases Investigated by Group Study Methods. E. V. Knapp, San Francisco.—p. 772.
20 *Modified Wassermann Technic Based on Rapid Fixation of Complement Present in Human Serum. C. J. Bartlett and A. J. O'Shansky, New Haven, Conn.—p. 776.
21 Few Points on Public Prophylaxis against Syphilis. A. Ravogli, Cincinnati.—p. 788.
22 Technic of Complement Fixation Test for Syphilis. C. F. Craig, Leavenworth, Kan.—p. 802.

9. **Syphilis of Pulmonary Artery.**—Up to the present no positive pathologic evidence of the existence of a syphilitic atherosclerosis of the pulmonary artery has been produced. Warthin's case offers such positive evidence; and syphilis of the pulmonary artery is now put on the same basis as that of the aorta. The microscopic changes in the atherosclerotic pulmonary artery of this case show exactly similar changes to those found in the wall of definitely recognized syphilitic aortas. Given sections of this pulmonary vessel cannot be distinguished microscopically from given sections of syphilitic aortas. The evidence here speaks decidedly in favor of the view of the specific nature of this especial form of arterial change. From Warthin's experience he believes that atherosclerosis, either of the ordinary type or of the syphilitic type macroscopically, that shows on microscopic examination perivascular infiltrations of lymphocytes and plasma cells along the course of the vasa vasorum, most marked in the adventitia; and following the vessels in their course through the media toward the intima, with obliteration of the arterioles, new formation of capillaries, fibroblastic proliferation, fibrosis of intima and media, secondary hyaline change and atheroma, is specific in character, and is due to the localization of the *Spirochaeta pallida* along the vasa vasorum.

Macroscopically the picture presented by the affected artery may be that of ordinary atherosclerosis or of the type recognized at the present time as syphilitic mesaortitis. Syphilis cannot be ruled out by the naked eye appearances of the aorta or artery at the necropsy table; the necropsy diagnosis of syphilis, however, can be made on the macroscopic criteria of syphilitic mesaortitis, as given above. Aortas presenting the gross picture of atherosclerosis may show on microscopic examination the most marked syphilitic infiltrations of the media and adventitia, and in Levaditi blocks from the same the presence of spirochetes has been shown. The microscopic examination is the only method by which syphilis of a vessel can be determined; macroscopic appearances cannot be relied on. The gross appearances of the pulmonary artery in this case were those of atherosclerosis. Had it not been for the aneurysm present its syphilitic nature would not have been sought and demonstrated.

10. **Latent Syphilis in Canal Zone.**—From a total of 1,198 colored surgical patients seen by Qualls, 908 showed no evidence of syphilis or gave history suggestive of the disease; 297 showed active evidence of syphilis or gave histories indicating previous syphilitic infection. The Wassermann test survey shows 23.7 per cent. of the nonsuspects to be syphilitic, and 36.7 per cent. of the suspects to be syphilitic. A grand total syphilitic infection of 27 per cent. exists among all colored employees admitted to the surgical wards. The latent syphilitic infection among colored male employees in the Canal Zone is exceedingly high; 23.7 per cent., as compared with the white employees showing 2.3 per cent. The total syphilitic infection among the white surgical patients is 15 per cent.

14. **Causes of Arterial Hypertension.**—Of 678 patients seen by McLester 124 had arterial hypertension varying from 155 mm. to 200 mm. and over. The average age of these patients was 53.75 years. Thirty-three patients gave a history of typhoid, 14 of pneumonia, 3 of yellow fever and 3 of recent scarlet fever. Only 6 patients admitted the excessive use of alcohol. The heart was enlarged in 67 instances, about 50 per cent. Albumin alone was found in the urine in 29 instances, and both albumin and casts in 61, or 50 per cent. of the cases. It is unfortunate that the phenolsulphonephthalein test of kidney function was made in only 11 of these, the average excretion in two hours being 49 per cent. The urine of 10 patients, 8 per cent. of the whole group, contained sugar. Among the focal infections were noted: 4 instances of diseased tonsils, 4 of infection of the accessory nasal cavities, 42 of diseased teeth (35 per cent.), 4 of chronic appendicitis, and 5 each of gallbladder and urinary tract infections. Twenty-one patients, or 17.5 per cent., gave a positive Wassermann reaction. Of the entire series of 678 patients 16.5 per cent. gave a positive Wassermann reaction.

17. **Roentgen Diagnosis of Lung Syphilis.**—Observations made by Watkins on approximately 1,000 chest roentgenograms justify the assertion that not fewer than 15 per cent. of tuberculous patients have also a syphilitic infection.

19. **Wassermann Reaction in Four Hundred Cases.**—The 400 cases studied by Knapp showed that men are five times more frequently syphilitic than women; that the central nervous system leaves demonstrable traces of the disease in 50 per cent. of the cases; that most of the cerebrospinal syphilis cases are in the male division; that the most important single method of examination for syphilis is the physical examination, the Wassermann second and the history least. The most convincing clinical diagnosis is when physical examination, Wassermann and history are all positive, the next in importance where two are positive and one negative, and the least where but one gives positive evidence.

Boston Medical and Surgical Journal

November 8, CLXXVI, No. 19

23 Physician's Impressions of Florida. W. L. Johnson, Uxbridge.—p. 647.
24 Tuberculosis in Dairy Cattle. C. M. Hilliard, Boston.—p. 654.
25 Danger to Children from Tuberculosis in Cattle. R. M. Smith, Boston.—p. 657.
26 Starting Health Habits in Childhood. L. P. Loring, Prides Crossing.—p. 659.
27 Community Health and Tuberculosis Demonstration at Framingham. D. B. Armstrong, Framingham.—p. 660.
28 County Tuberculosis Hospitals; Report of Progress. E. R. Kelley, Boston.—p. 663.
29 What Becomes of Discharged Consumptives? B. M. Billings, Boston.—p. 664.
30 Annual Report of Massachusetts Antituberculosis League, 1917. S. H. Stone, Boston.—p. 667.

Journal of Experimental Medicine, Baltimore

November, XXVI, No. 5

31 *Relation of Spinal Cord to Spontaneous Liberation of Epinephrin from Suprarenals. G. N. Stewart and J. M. Rogoff, Cleveland.—p. 613.
32 *Effect of Stimulation of Sensory Nerves on Rate of Liberation of Epinephrin from Suprarenals. G. N. Stewart and J. M. Rogoff, Cleveland.—p. 637.
33 Bactericidal Fluorescence Excited by Roentgen Rays. H. S. Newcomer, Philadelphia.—p. 657.
34 Hemolysins of Vegetable Origin. I. L. Kritchevsky, Moscow, Russia.—p. 669.
35 *Development of Toxicity in Intestinal Secretion. D. M. Davis and H. B. Stone, Baltimore.—p. 687.
36 Comparative Study of Serum and Lymph Ferments After Feeding. B. F. Davis and W. F. Petersen, Chicago.—p. 693.
37 Comparative Study of Lymph and Serum Ferments During Protein Shock Reactions. B. F. Davis and W. F. Petersen, Chicago.—p. 699.
38 *Glomerulonephritis. An Attempt to Produce Glomerulonephritis by Repeated Injections of Bacteria. H. K. Faber and V. Murray, San Francisco.—p. 707.
39 *Interrelation of Surviving Heart and Pancreas of Dog in Sugar Metabolism. A. H. Clark, Baltimore.—p. 621.
40 *Carriage of Virus of Poliomyelitis with Subsequent Development of Infection. E. Taylor and H. L. Amoss, Burlington, Vt.—p. 745.

31. **Relation of Spinal Cord to Spontaneous Liberation of Epinephrin.**—After section of the spinal cord in cats in the cervical region, as low as the last cervical segment, epinephrin continues to be liberated from the suprarenal glands. This liberation has all the characters of the normal secretion with intact central nervous system. It is sustained through the same nerve paths connecting the cord with the suprarenals. After section of the cord in the middorsal region the spontaneous liberation of epinephrin from the suprarenals is abolished within the limits of detectability by the methods employed (denervated eye reactions of Meltzer, and rabbit intestine and uterus segments). The portion of the cord concerned in the liberation of epinephrin does not appear to extend much below the third thoracic segment. In acute experiments on cats under urethan anesthesia no change in the rate of liberation of epinephrin which could be detected by the tests employed, was observed when the cord was severed in the cervical region.

32. **Effect of Stimulation on Rate of Liberation of Epinephrin.**—An attempt was made to determine whether stimulation of afferent nerves (sciatic and brachial) produced a detectable increase in the rate of liberation of epinephrin from the suprarenals, as determined by testing suprarenal vein blood on rabbit intestine and uterus segments. The result was negative.

35. **Toxicity of Intestinal Secretion.**—Davis and Stone assert that intestinal secretion collected by the method described in this paper is nontoxic when fresh. This secretion, when heated immediately to 90 to 95 C. and kept sterile, remains nontoxic. This secretion when not heated remains nontoxic when kept under chloroform and toluene, even if incubated at 37 C. This secretion when not heated, but collected in a sterile flask, becomes toxic on incubating eighteen hours, producing symptoms like those of closed loop fluid. The secretion, when treated with chloroform and toluene, and later incubated for eighteen hours, after these preservatives have been removed by distillation at 60 C., does not produce lesions typical of closed loop fluid.

38. **Attempt to Produce Glomerulonephritis by Injections of Bacteria.**—Repeated injections into the blood stream of streptococci and staphylococci derived from cases of scarlet fever, and of *Bacillus coli-communior* failed to produce typical glomerulonephritis even when immune bodies could be demonstrated in the serum in high dilutions. Bacteriolysis of streptococci was not found by the usual tests in vitro or by the Pfeiffer procedure.

39. **Heart and Pancreas in Sugar Metabolism.**—When the pancreas of a dog is perfused aseptically with a Locke's solution containing dextrose in physiologic concentrations, the optical rotation of the perfusate is diminished, but its reducing power is unaltered. This change also occurs if dextrose is added to a sugar-free pancreatic perfusate and the mixture incubated. These perfusates yield osazones with lower melting points than glucosazone, but when the per-

fusates are hydrolyzed with weak acid their optical rotations and the melting points of their osazones are increased. These changes do not occur with levulose, or with an extract of the pancreas and dextrose. When the heart, spleen or kidneys are perfused with dextrose solutions, hydrolysis of the perfusates does not increase their optical rotation or power of reduction. When a pancreatic perfusate containing dextrose is circulated through a living heart, not only do the above changes take place but, in addition, the reducing properties of the perfusate are altered. Hydrolysis of such a perfusate increases its reducing power, its optical rotation, and the melting point of its osazone. A heart does not cause this effect either alone or when perfused together with the spleen or kidneys. Levulose perfused through the heart and pancreas is unchanged. These phenomena are believed to be due to an enzyme or enzymes obtained from the perfused pancreas. The changes in optical rotation, in reduction, and in the osazones are accounted for by different degrees of dextrose condensation. While the living heart can destroy both dextrose and levulose to some extent, the experimental results suggest that the enzyme or enzymes derived from the perfused pancreas have a specific action on dextrose and are responsible for certain essential steps by which dextrose is prepared for normal utilization.

40. **Carriage of Virus of Poliomyelitis.**—A family group containing four children of whom all showed in varying degree symptoms of poliomyelitis is described by Taylor and Amoss. The source of infection and periods of incubation have been followed. Two of the children were proved by inoculation tests to carry the virus of poliomyelitis in the nasopharynx. Of these, one was detected to be a carrier after recovering from a nonparalytic attack of the disease, and the other was discovered to be a carrier about five days before the initial symptoms, attended later by paralysis, appeared. The original case from which the three others took origin was fatal; the youngest child, after quite a severe onset, was treated with immune serum and made a prompt and almost perfect recovery. The nasopharyngeal secretions of two of the patients, taken one month after the attack, proved incapable of neutralizing an active poliomyelitis virus. The proposition is presented that every case of poliomyelitis develops from a carrier of the microbic cause, or virus, of poliomyelitis.

Journal of Immunology, Baltimore

October, II, No. 6

41 *Anaphylaxis in Dogs. The Liver in Shock and in Peptone Poisoning.—R. Weil, New York.—p. 525.
42 Tissue Transplantation and Anaphylaxis. L. Loeb, Washington, D. C.—p. 557.
43 Anaphylactic Reactions of Isolated Dog's Liver. R. Weil and C. Eggleston, New York.—p. 571.
44 New Method for Making Wassermann Antigens from Normal Heart Tissue. C. A. Neymann and L. T. Gager, Baltimore.—p. 573.

41. **Liver in Shock and Peptone Poisoning.**—Weil found that blood taken from dogs at the height of anaphylactic shock fails to produce any symptoms when injected, even in very large amounts, into normal animals, indicating that the blood does not contain any toxic substance. The isolated liver of a sensitized dog does not alter the coagulability of blood with which it is perfused; if, however, the antigenic substance is added to the blood before it traverses the organ, it passes out with its coagulability either diminished or completely abolished. The normal liver exercises no such effect. The injection of the antigenic substance, even in very small amount, into one branch of the portal vein of a sensitized dog produces an immediate severe congestion of the corresponding lobe of the liver. The blood rapidly becomes incoagulable, and symptoms of shock develop. Subsurface injection of the antigen into the sensitized liver produces a local focus of congestion. The postmortem examination of dogs dying in acute anaphylactic shock, within one hour, reveals as the single outstanding feature the enormous congestion of the liver. The other abdominal viscera show either very little congestion or none. The marked congestion of the gastro-intestinal tract in dogs dying after an interval of several hours is a late phenomenon, probably secondary to the congestion of the liver. Microscopic examination shows intense congestion of the liver, and degenerative changes in the parenchyma cells. Peptone affects the liver in exactly the same fashion as does anaphylaxis. The isolated organ, when perfused thereby, renders the blood incoagulable. Injection into one branch of the portal vein induces a localized area of hepatic congestion. The peptone theory of hepatic shock maintains that peptones are produced during the anaphylactic reaction, and that they are directly responsible for the symptoms. There are no experimental observations which establish this theory. It is based chiefly on the resemblances between peptone intoxication and anaphylactic shock, and these are adequately explained by the fact that in both conditions the same hepatic mechanism is affected. The peptone theory cannot be harmonized with the experimental data recorded in this paper. These results introduce a new function of the liver, namely, its participation in the immune reaction.

Journal of Laboratory and Clinical Medicine, St. Louis

October, III, No. 1

45 *Bearing of Antityphoid Vaccination on Diagnostic Value of Agglutination Test in Typhoid and Paratyphoid. E. Rist.—p. 1.
46 *Antibodies in Gonococcal Arthritis After Intravenous Injection of Specific and Nonspecific Protein. H. Culver, Chicago.—p. 11.
47 *Blood and Urine Ammonia in Acidosis. H. L. McNeil and M. D. Levy, Galveston, Texas.—p. 18.
48 *Infectious Meningitis. Study of Twenty-Seven Cases in Five Hundred and Eighty-Six Necropsies. S. Graves, Louisville, Ky.—p. 32.
49 *Prevention of Simple Goiter in Man. D. Marine and O. P. Kimball, Cleveland.—p. 40.
50 *Transplantation of Thymus in Rabbits—Relation of Thymus to Sexual Maturity. D. Marine and O. T. Manley, Cleveland.—p. 48.
51 *Complement Fixation Test in Tuberculosis with Besredka's Antigen. J. Bronfenbrenner, Boston.—p. 50.
52 Case of Congenital Cystic Kidney in which Tuberculous Process was Superimposed. P. G. Woolley, Cincinnati.—p. 55.
53 Effect of Natural Antisheep Hemolysin Content of Human Serum on Complement Fixation Tests. A. I. van Saun, Albany, N. Y.—p. 59.
54 *Wassermann Reaction with Large Amounts of Patient's Serum. A. I. van Saun, Albany, N. Y.—p. 61.
55 Method for Making Graphic Records of Movements of Certain Internal Organs. D. E. Jackson, St. Louis.—p. 63.
56 *Simple Method of Obtaining Blood Serum. M. G. Wohl, Omaha.—p. 68.

45. **Antityphoid Vaccination and Agglutination Test.**—The total number of quantitative tests performed by Rist from February to November, 1915, amounted to 11,648. He found that in nonvaccinated individuals the agglutination test is of the greatest practical value for diagnosing infection caused by the bacilli of the typhoid group. But, when it comes to discriminate between the three subspecies belonging to that group, the information given by the Widal test should be accepted with great caution. A predominance of the agglutination titer of *B. paratyphoid* A or B speaks almost certainly in favor of *B. paratyphoid* A or B. But if the agglutination titer of *B. typhosus* predominates, the probability of the disease being due to *B. typhosus* is only 73.3 per 100. In individuals having been previously vaccinated against *B. typhosus*, the agglutination test is absolutely unable to confirm a clinical diagnosis of typhoid. The behavior of the agglutination titer in vaccinated typhoid or paratyphoid patients is not distinguishable from the behavior of the same titer in vaccinated individuals suffering from any other disease. In a case of clinically confirmed typhoid occurring in a previously vaccinated individual, the agglutination test has a practical diagnostic value whenever it shows a constant predominance of the agglutination titer for one of the paratyphoid germs. But this is a very rare finding. In the greater majority of cases the agglutinating titer for *B. typhosus* predominates. It has no diagnostic value, the probability of mistaking paratyphoid for typhoid being slight. Blood culture is therefore the only reliable method to ascertain whether a typhoid infection occurring in a vaccinated person is due to *B. typhosus* or to one of the paratyphoid germs.

46. ***Antibodies in Gonococcal Arthritis After Protein Injection.***—It is shown by Culver that primary and secondary proteose preparations stimulate antibody production or mobilization for specific organisms in gonococcal arthritis in a

manner not to be distinguished from that produced by the injection of the specific organisms themselves. In gonococcal arthritis there is either no change or a decrease in the antibody content of serum within the first twenty-four hours following an intravenous injection in all excepting the first injection when the lytic substances seem to be slightly increased during this time. In favorable patients the first injection usually causes the greatest clinical benefit. However, refractory patients may give a similar lysin increase during the first twenty-four hours following an injection; hence the subjective and objective improvement in favorable cases cannot unquestionably be attributed to an increase in antibodies alone.

47. **Blood and Urine Ammonia in Acidosis.**—During the course of routine analyses for urea of the blood of a chronic alcoholic, who was suffering from repeated periodic attacks of nausea and vomiting of unknown etiology, an estimation of his blood ammonia was made, and it showed an ammonia content of 23 mg. of ammonia per hundred cubic centimeters blood. Similar analyses were made in cases of nephritis, cardiac failure, chronic diseases of the liver, toxemias of pregnancy and acidosis. Increases of blood ammonia of above 1 mg. per hundred cubic centimeters are ocasionally encountered in various diseases. Such increases cannot be explained by acidosis in all cases. The fact that nine cases showing marked increases (over 3 mg. per hundred cubic centimeters), which have come to necropsy, have shown definite hepatic lesions would suggest some connection between increased blood ammonia and functional insufficiency of the liver. The fact that of ten chronic and subacute cases of inflammatory disease of the liver studied only one has shown an increase of blood ammonia would indicate acute functional insufficiency of the liver cells rather than acute or chronic inflammatory changes in the liver parenchyma as the source of any blood ammonia increase.

48. **Infectious Meningitis.**—The most important lesson to be drawn from this study concerns lumbar puncture and spinal fluid. Correct antemortem diagnoses were established in 100 per cent. of cases in which proper lumbar punctures and spinal fluid examinations were made. Correct antemortem diagnoses were not established in 70 per cent. of cases in which proper lumbar punctures and spinal fluid examinations were neglected. Graves advises that in drawing spinal fluid the second portion should always be collected in a separate, clean, dry, sterilized test tube. Any blood in the specimen to be examined renders findings unreliable, wastes time and material and may lead to incorrect conclusions.

49. **Prevention of Simple Goiter.**—In a complete census taken by Marine and Kimball of the condition of the thyroid in the girls from the fifth to twelfth grades of the school population of a large community in the Great Lakes goiter district, it was found that 1,688, or 43.59 per cent., had normal thyroids; 2,184, or 56.41 per cent., had enlarged thyroids; and 594, or 13.4 per cent., had well defined, persistent thyroglossal stalks. The community lies near the southern edge of the goiter district and it is suggested that communities near the lakes would show a higher incidence. The following method of prophylaxis proposed is in operation. For the prophylactic treatment the authors have selected sodium iodid on the grounds of economy and ease of administration. One mg. of iodin given weekly, by mouth, is ample to prevent goiter in dogs. In all their dispensary experiments with children the authors used either syrup of hydriodic acid or syrup of ferrous iodid, in 1 c.c. doses, daily for two to three weeks, repeated twice yearly. They have, therefore, arbitrarily selected to use 2 gm. sodium iodid, given in 0.2 gm. doses each school day, for each pupil in fifth, sixth, seventh and eighth grades; and 4 gm. given in 0.4 gm. doses each school day for each pupil in the ninth, tenth, eleventh and twelfth grades. These amounts will be given twice annually about the first of May and December, at the schools by the teachers or nurses. These amounts of sodium iodid provide approximately 1,700 (1,692) mg. of iodin for each pupil of the fifth, sixth, seventh and eighth grades and approximately 3,400 (3,384) mg. for the ninth, tenth, eleventh and twelfth grades.

50. **Transplantation of Thymus.**—The preliminary experiments reported on by Marine and Manley show that in sexually immature rabbits, fragments of thymus autotransplanted into the subcutaneous tissue of the abdomen after thymectomy may "take," grow and survive. There is clear though scant evidence in confirmation of other observers' results, that thymus removal hastens sexual maturity. Also, as others have found, utilization of rabbits for breeding hastens involution of the thymus. The authors' experiments show that this applies to the transplanted thymus as well, and this suggests that a specific nerve influence is not essential for these involutionary changes.

51. **Besredka's Antigen in Tuberculosis Complement Fixation Test.**—As for the percentage of the occurrence of the reaction in different stages of tuberculosis when a purified antigen of Besredka is used, Bronfenbrenner presents these approximate figures: first stage, 84 per cent.; second stage, 94 per cent.; third stage, 15.3 per cent.; clinically nontuberculous (controls), nonsyphilitics, 5 per cent. The question of surprisingly low percentage of positive results in far advanced cases was especially investigated. In addition to the Besredka antigen, Bronfenbrenner examined a large group of such cases (from Leech Farm, Pittsburgh), with the antigens of Craig, Corper and Calmette, and more recently also with antigen of Miller. Although it was possible to observe a slight variation in the results obtained with respective antigens, in general they reacted no better than that of Besredka.

54. **Wassermann Test with Large Amounts of Serum.**—The use of a large amount of serum does not, in van Saun's experiences, change a serum giving a negative reaction to one giving a positive if a double serum control (0.8 c.c.) is used and the result of the test read only when this control is completely hemolyzed. In a number of tests she has found that the 0.4 c.c. control has been extremely slow to hemolyze, and has occasionally fixed complement completely. This result appears to point to a lack of specificity in a test depending on this amount of diagnosis. Van Saun does not consider the Kromayer modification a safe method to use for the practical examination of large numbers of serums.

56. **Simple Method of Obtaining Blood Serum.**—Wohl describes his method as follows: Place a small piece of paraffin (0.5 gm. is sufficient for an ordinary 6 inch serologic test tube) into a container that is ready for sterilization, cork it and sterilize it. On removal of container from sterilizer roll it so as to cover its walls with the paraffin. It takes only a few minutes until the thin film of paraffin is hardened. To clean the container, rinse it with cold water until all the blood is removed, melt the paraffin and pour off. The excess of paraffin is removed by means of a gauze applicator.

Medical Record, New York

November 10, XCII, No. 19

57 Breast Feeding. M. S. Reuben, New York.—p. 793.
58 New Faradic Current Test for Incipient Cancer of Breast. G. B. Massey, Philadelphia.—p. 803.
59 Significance of Pyrexia in Infants. W. W. Harper, Selma, Ala.—p. 805.
60 Advancement in Obstetrics. M. T. Benson, Atlanta, Ga.—p. 806.
61 Capillary Caliber and Its Relation to Normal and Diseased States. W. V. Gage, Worland, Wyo.—p. 808.

Nebraska State Medical Journal, Norfolk

October, II, No. 10

62 Few Practical Points in Clinical Interpretation of Wassermann Reaction and Its Value in Lesions of Stomach. M. G. Wohl, Omaha.—p. 445.
63 Popular Consideration of Syphilis. F. E. Coulter, Omaha.—p. 451.
64 Intraspinous Medication in Syphilis. E. Kelly, Omaha.—p. 454.
65 Dementias of Young. B. F. Bailey, Lincoln.—p. 458.

New York Medical Journal

November 10, CVI, No. 19

66 Some Aspects of Military Surgery. H. B. Barling.—p. 869.
67 Repair of Flatfoot, Broken Arch, or Rheumatism of Feet, Especially in Recruits. J. M. Taylor, Philadelphia.—p. 872.
68 Traumatic Hysteria. C. P. Oberndorf, New York.—p. 874.
69 Clinical Observations from Study of Three Hundred and Seventy-One Cases Presenting Symptoms of Nephrolithiasis. R. F. O'Neil, Boston.—p. 876.
70 Factors of Race Improvement. C. L. Redfield, Chicago.—p. 882.
71 Case of Amaurotic Family Idiocy. J. Epstein, New York.—p. 887.
72 Some Functional Inefficiencies of Teeth Associated with Occlusal Anomalies. M. Hellman, New York.—p. 889.

Philippine Journal of Science, Manila

July, XII, Sec. B, No. 4

73 *Degeneration of Peripheral Nerves. C. Manalang, Manila.—p. 169.
74 Disappearance of Pigment in Melanophore of Philippine House Lizards. E. S. Ruth and R. B. Gibson, Manila.—p. 181.
75 *Essential Factor in Treatment of Pregnant Cholera Patients. P. McC. Lowell, Manila.—p. 191.
76 Echinostoma Ilocanum (Garrison): Report of Five Cases and Contribution to Anatomy of Fluke. J. S. Hilario and L. D. Wharton, Manila.—p. 203.

73. **Degeneration of Peripheral Nerves.**—The object of Manalang's work is to determine the presence of degeneration in the peripheral nerves of diseases other than beriberi and to emphasize the presence of the degeneration in nonberiberics. In a mixed necropsy service in Manila 88 out of 104 cases showed microscopically degeneration of the peripheral nerves by the Marchi method. Of these 88 cases the degeneration was slight in 55, moderate in 29, and marked in 4. Of the 88 cases of nerve degeneration more than half (49) occurred between the ages of 20 and 50 years, but no age was exempt. Of the 88 cases of nerve degeneration there was nephritis of some form in 69. Manalang found that the condition of nutrition is not an important factor in determining the nerve degeneration, and a reasonable interval (two to forty-eight hours) between death and necropsy does not necessarily mean a sequential myelin sheath change, as demonstrated by the Marchi method. (These bodies were kept at a temperature just above freezing.) With the knowledge that this study was made from a routine necropsy service in Manila and that the subjects were all Filipinos, the following factors must be taken into consideration in attempting to explain the occurrence of degeneration in 88 out of 104 cases studied. In Manila beriberi is endemic, and therefore there is the possibility of many persons with unrecognized mild beriberi dying of other diseases. There may be many patients who recovered from beriberi and died of other diseases. The nutrition of the working class of Filipinos in general is below par, due to insufficient food, excessive nonnutritious food, or a one-sided diet.

75. **Treatment of Pregnant Cholera Patients.**—The essential factor in the treatment of pregnant cholera patients according to Lowell is to remove the dead fetus as soon as possible and in the manner best suited to the mother's condition, because it shortens the period of convalescence, preserves the strength of the mother, and reduces the mortality to about that of the nonpregnant cases.

Southern Medical Journal, Birmingham, Ala.

November, X, No. 11

77 Acidosis in Children. F. H. Smith, Abingdon, Va.—p. 839.
78 Albuminate of Copper as Intravenous Antiseptic. J. S. Fleming, Memphis, Tenn.—p. 845.
79 Hirschsprung's Disease; Report of Case. R. W. Baird and G. C. Kindley, Dallas, Texas—p. 846.
80 Two Cases of Swallowing Seven and a Half Grain Tablet of Bichlorid of Mercury. I. L. Van Zandt, Fort Worth, Texas.—p. 848.
81 Public Health and Government. E. G. Williams, Richmond, Va.—p. 850.
82 County Method of Handling Tuberculosis. D. C. Absher, Henderson, N. C.—p. 852.
83 Saving Sight—Saving Citizens. G. L. Berry, New York.—p. 857.
84 *Exstrophy of Bladder with Report of Transplantation of Entire Bladder and Ureteric Openings into Sigmoid. W. D. Haggard, Nashville, Tenn.—p. 862.
85 Unusual Case of Extra-Uterine and Abdominal Pregnancy. L. C. Fischer, Atlanta, Ga.—p. 866.
86 Treatment of Tetanus. J. H. Neff, Charlottesville, Va.—p. 868.
87 Roentgen Ray Diagnosis of Pathologic Gallbladder. G. M. Niles, Atlanta, Ga.—p. 873.
88 Indian Operation for Cataract. F. B. Tiffany, Kansas City, Mo.—p. 876.

84. **Exstrophy of Bladder.**—Haggard's patient made an uninterrupted recovery, passing a normal quantity of urine through the catheters, which protruded from the rectum and which were left in place for four days. After that time the patient passed the urine through the rectum at frequent intervals, which have gradually lengthened, until now at the end of three years she is able to retain the urine from three to four hours by day and from five to six hours at night. There has never been any leakage whatever. The anterior wound healed over completely. Her general health is unimpaired.

Southwestern Medicine, El Paso, Texas

October, I, No. 10

89 Blood Picture as Aid to Prognosis and Treatment in Tuberculosis. R. E. Thomas, Phoenix, Ariz.—p. 9.
90 Rollier's Method in Treatment of Pott's Disease. J. W. Flynn, Prescott, Ariz.—p. 11.
91 Military Surgeon. H. A. Ingalls, Roswell, N. M.—p. 14.
92 Roentgen Therapy and Tubercular Lesions. J. W. Cathcart, El Paso.—p. 18.
93 Autosensitized Serobacterin. W. O. Sweek, Phoenix, Ariz.—p. 21.
94 Dentistry's Share in Preparedness. E. P. Tignor.—p. 25.

South Carolina Medical Association Journal, Greenville

October, XIII, No. 10

95 Roentgen Ray Diagnosis of Chronic Appendicitis. A. R. Taft, Charleston.—p. 693.
96 Use of Dakin's Solution in Gangrenous Endometritis, Following Puerperal Sepsis. B. J. Workman, Charleston.—p. 704.
97 Uterine Evacuations, Elective and Enforced. Cesarean and Porro Operations. Report of Cases. S. O. Black, Rochester, Minn.—p. 707.
98 Postgraduate Course in Anatomy at Home. W. F. R. Phillips, Charleston.—p. 710.

Vermont Medicine, Rutland

October, II, No. 10

99 Diagnosis. C. H. Beecher, Burlington.—p. 233.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

October, XXII, No. 5

1 Electrotherapy in Military Hospitals. N. H. M. Burke.—p. 130.
2 Treatment of Wounded by Means of Electricity. H. J. Seeuwen.—p. 136.
3 Shrapnel Balls; Their Roentgen Ray Characteristics Compared with Bullets and Other Foreign Bodies. A. H. Pirie.—p. 138.

British Medical Journal, London

October 27, II, No. 2965

4 Harvey's Work Considered in Relation to Scientific Knowledge and University Education in His Time. R. Saundby.—p. 543.
5 *New Operation for Cure of Inguinal Hernia.—A. J. Hull.—p. 548.
6 Modern Artificial Limbs and Their Influence on Methods of Amputation. E. M. Little.—p. 550.
7 How to Attach an Artificial Arm or Leg. R. C. Elmslie.—p. 553.

5. **New Herniotomy.**—The operation described by Hull aims to remove the sac at the heighest possible level with the minimum disturbance of tissue. No dissection of tissues is undertaken, or injuring the delicate or important structures which surround a hernial sac by attacking the hernia from within the sac. Under local anesthesia an incision from half an inch to an inch in length is made and carried down to the aponeurosis of the external oblique. The fibers of the external oblique are split for a distance of half an inch. The opening in the external oblique should lie directly over the spermatic cord. The cremasteric and spermatic fascial coverings of the cord are drawn through the aperture of the external oblique. The cremasteric fibers are separated and the spermatic fascia incised. Two pairs of fine hemostatic forceps are placed on the edge of the sac, and an incision half an inch in extent, made between them by a snip of a pair of scissors. The two layers of the sac forming the lips of the aperture are now clipped with hemostatic forceps. The aperture can now be held open by four pairs of forceps, and four incisions are made, one between each pair of forceps, enlarging the aperture sufficiently to display the interior. If omentum lies in the sac it is drawn out, ligatured, and cut off. This interior of the sac presents for examination two apertures, one the internal ring passing into the abdomen, the other passing down the inguinal canal. These apertures are separated from one another by a process of peritoneum, the crista which corresponds to the internal margin of the internal ring. The neck of the sac is exposed and freed without

dissecton. A gauze swab is gently passed down the outer and inner side of the sac. A gentle pull is made on the neck of the sac while it is ligatured as high up as possible. It is unnecessary and undesirable to perform any displacing maneuver to the neck of the sac. When the sac is cut off distal to the ligature, the elasticity of the peritoneum will displace the ligatured sac well behind the rectus muscle. In 90 per cent. of cases this is all that it is necessary to do, and the skin incision is sutured with silkworm gut passing down to, and taking up the edge of the external oblique.

Indian Medical Gazette, Calcutta

September, LII, No. 9

8 Ulcerating Granuloma of Pudenda. D. F. Curjel.—p. 305.
9 Plea for Painless Childbirth in India. C. Webb-Johnson.—p. 310.
10 Early Diagnosis of Leprosy. C. L. Palk and R. Bryson.—p. 316.
11 Treatment of Kala-Azar with Antimony Tartrate. E. Muir.—p. 317.
12 Treatment of Kala-Azar and Some Blood Reactions in This Disease. U. N. Brahmachari.—p. 319.
13 Intravenous Eusol in Plague. W. F. Brayne.—p. 322.
14 Quinin Idiosyncracy in Five Cases. J. A. Sinton.—p. 323.

Lancet, London

October 27, II, No. 4913

15 Harvey's Work Considered in Relation to Scientific Knowledge and University Education in His Time. R. Saundby.—p. 633.
16 *Treatment of Trench Feet and Allied Conditions by Bier's Method of Passive Hyperemia. P. Turner.—p. 638.
17 *Treatment of Series of Recently Inflicted War Wounds with Flavine. H. Drummond and J. W. McNee.—p. 640.
18 Ether-Oil Anesthesia by Rectum. H. M. Page and G. B. M. White.—p. 643.
19 Cartilage Prosthesis for Eye. J. L. Aymard.—p. 644.
20 Departmental Committee on Welfare of Blind. A. Lawson.—p. 654.

16. **Trench Feet Treated by Passive Hyperemia.**—Turner's experience with this form of treatment has been satisfactory to him. In slight and moderate cases the swelling of the foot has usually disappeared in twenty-four or forty-eight hours after the application of the bandage. In severe cases it may persist longer. Pain improves rapidly, and in twenty-four hours has either disappeared or has markedly diminished. Anesthesia improves steadily, but not so rapidly. In a moderate case with anesthesia of all the toes and of the greater part of the dorsum of the foot the sensation will probably be normal in four days, with the exception of blisters and gangrenous spots where the sensation is naturally still deficient. In cases of moderate severity blisters and the gangrenous areas shrivel, dry up, and eventually separate, leaving an unbroken delicate pink skin underneath. Not infrequently there is an extensive desquamation of the skin of the affected part, sometimes of practically the whole foot. In extensive cases, after the separation of dried blisters, gangrenous spots, and epithelial scales, there is left a surface of thin, pink, soft skin resembling a baby's foot. This is naturally very tender, and though the patient can walk in soft shoes, boots cannot be worn until the thin skin has become hardened and accustomed to pressure. Turner regards this desquamation and separation of dried gangrenous areas as part of the natural process of cure in these cases of moderate severity, and thinks that the treatment by passive hyperemia considerably accelerates the process. In slight cases, as soon as pain, swelling and anesthesia have disappeared, usually after four or five days, the patient is allowed to walk in soft shoes. Then after two days boots are worn at first for half an hour daily. This period is gradually increased until the boots can be worn for two hours without discomfort, when the man is discharged to the convalescent depôt. In moderate cases the procedure is the same. A longer period is, however, required before walking is possible and before boots can be worn. Severe cases always require evacuation to England.

17. **War Wounds Treated with Flavine.**—This is the authors' report to the medical research committee. Flavine was tested out by Drummond and McNee clinically as well as in the laboratory. Seventy patients, many having multiple injuries, were treated. The flavine was at first employed in a strength of 1 in 1,000, the dilution being made in normal saline solution, in which the powder is readily soluble. This routine was soon given up, however, as it was found that equally good results ensued if the use of 1 in 1,000 solution for the first dressing was followed by the employment of a solution 1 in 5,000 for all subsequent applications. In some cases, also, where the Carrel method of irrigation was being used, the strength of the solution was further reduced to 1 in 10,000. The surgical methods adopted depended on the type of injury met with. Long incisions, with free excision of damaged muscle and fascia, must be regarded as a cardinal part of all operative treatment in recent wounds, no matter what subsequent methods are employed. After this preliminary surgical treatment the wounds treated with flavine were dealt with in the following ways: 1. Primary suture. 2. Drainage by tube or gauze strip, followed by secondary suture. 3. The Carrel method of intermittent irrigation. 4. Gauze packing in open wounds. Wounds treated by excision of the infected and damaged tissue, followed by primary suture, gave excellent results.

Secondary suture gave good results in all the cases in which it was adopted. In open wounds on removal of the first dressing on the third day the wound, except for being deeply stained with flavine, has undergone no alteration whatever in its appearance, and resembles an injury only a few hours old. All signs of inflammation are wanting, and there is no pain, redness, swelling, or induration in the tissues around. The secretion from the wound is minimal in amount and suppuraton is absent. The complete absence of suppuration, even in wounds where films show abundant organisms to be present, is a noteworthy feature in wounds under treatment with flavine. When dressed again at the end of a week the skin edges are found clean cut, no epithelial growth having taken place from the edges. The floor of the wound has by this time become covered by a closely adherent membrane, only detached with difficulty from the underlying structures. This yellow pellicle forms over whatever tissue is exposed in the wound, whether it be muscle or subcutaneous fat. Experience has shown that a wound heals with much greater rapidity if the flavine be stopped after three or four days in the case of small wounds, and after about a week in the case of severe wounds or compound fracture.

Flavine appears to have many advantages as a primary treatment of recent war wounds. Among the advantages are: (*a*) The absence of all toxicity, even in large wounds. (*b*) The prevention of suppuration and of spreading sepsis. (*c*) The primary dressing need not be changed for two or three days, and is then easily and painlessly removed. This may be of great advantage during severe fighting where rapid evacuation of wounded from front to base is required without unnecessary dressing of the wounds. (*d*) The wounds are not inflamed or painful, and the surrounding skin is never irritated. Flavine cannot be classed as a success in the treatment of the later stages of war wounds. The wounds tend to assume a stagnant condition, during which the processes of repair are almost in abeyance. After a few days, when the danger of gas gangrene and of spreading sepsis have to a great extent passed off, flavine should be stopped and another treatment adopted. In the majority of cases war wounds are not rendered bacteriologically sterile even by the prolonged use of flavine. Test tube experiments carried out with organisms isolated from actual wounds bear out the strong antiseptic properties of flavine, and their enhancement in the presence of serum. Coliform bacilli which are a common infection in the later stages of wounds, are much more resistant to the action of the antiseptic in test tube experiments than any of the other types of organism examined in this way.

Medical Journal of Australia, Sydney

September 29, II, No. 13

21 Case of Systemic Blastomycosis-Blastomycotic Cerebrospinal Meningitis. H. Swift and L. B. Bull.—p. 265.
22 War Injuries of Ear. R. E. Shuter.—p. 267.
23 Occurrence of Mysterious Disease in Southern Queensland. A. G. Anderson.—p. 270.

October 6, No. 14

24 Prostatic Obstructions and Their Surgical Treatment with Special Reference to Two Stage Operation. S. H. Harris.—p. 285.

25 Establishment and Work of Commonwealth Serum Laboratories. W. J. Penfold.—p. 290.

October 13, No. 15

26 Morbid Anatomy of Insanity. W. A. T. Lind.—p. 305.
27 Rough Clinical Notes on Some Recent Interesting Surgical Cases. L. M. McKillop.—p. 308.
28 Case of Progressive Lenticular Degeneration. H. Swift.—p. 310.

Sei-I-Kwai Medical Journal, Tokyo

October, XXXVI, No. 10

29 *Fate of Starch Granules Injected into Rabbit's Vein. M. Okazaki. —p. 101.

29. Fate of Starch Granules Injected into Rabbit's Vein.—Okazaki says that starch granules injected into the rabbit's vein begin to present the glycogen reaction on the sixth day after the first injection of starch emulsion. This reaction can be demonstrated in the granules in the blood and within the histiocyte, but is more marked in the latter. On the basis of these observations Okazaki declares that the histiocyte has a diastatic action converting starch into glycogen.

Bulletin de l'Académie de Médecine, Paris

October 9, LXXVIII, No. 39, pp. 361-394

30 *Flying Surgical Units. Plisson and Quénu.—p. 362.
31 Discussion of Declining Birth Rate. Pinard and others.—p. 367. Continuation.
32 Treatment of War Wounds with Vincent's Hypochlorite Powder. J. Martin.—p. 388.
33 Strychnin in Large and Progressive Doses as Tonic after Extensive Wounds. P. Hartenberg.—p. 392.

30. Flying Surgical Unit.—Plisson's proposed *groupe chirurgical mobile* is already working at the front. The principle is to have the operative, the hospital and the administration sections separate, distinct and interchangeable. The operative section is also composed of separate interchangeable parts, each with its truck, one for sterilization, one for the surgical material, one for radiography, and one for the preoperative tent. The hospital section also is divided into interchangeable parts, each with its truck, carrying twenty beds and all other equipments for complete hospital service. The present unit comprises eleven trucks, but more can be added at need as each truck is complete in itself; the personnel of the unit, including the fifty-two nurses, travel by automobiles. This flying unit is thus autonomous and extensible. As it travels on its own power it is independent of traffic, and can be swiftly moved to points where its services are most required.

Journal de Chirurgie, Paris

XIV, No. 2, pp. 113-216

34 *Resection of the Hip Joint for War Wounds. P. Alquier and J. Tanton.—p. 113.

34. Resection of Hip Joint.—Alquier and Tanton give an illustrated description of twelve cases in which from eight to twelve months have elapsed since they resected part of the hip joint above the head, or through or at the base of the neck, or through or below the trochanter. In only one of the twelve cases was the resection primary. In all but two, infection was already installed after the comminuted fracture of the upper end of the femur. Their experience demonstrates that it is possible with an early and complete operation to realize the aseptic healing of a war fracture of this kind. The after care is as important as the operation itself. They get the man on his feet even before the wound has quite healed, the foot hanging loose in a walking cast. If there is danger of talus equinus they have a sole fitted in the stirrup which holds the foot horizontal. A celluloid cast replaces the open plaster cast when the man gets up, and crutches are gradually discarded early. The cases are reported in detail, the outcome justifying the conclusions that even extensive resection of epiphysis and shaft may give good results, the joint solid and free from pain, with possibly some slight functioning of the new joint provided the resection is done at a secondary operation, subcapsular and subperiosteal, at the period of most active bone regeneration. They sacrificed an extent of bone from 12 to 18 cm. long, and their confidence in the ultimate anatomic and functional repair was justified by the outcome in the young men. In only one of their cases was the man left with a loose fibrous pseudarthrosis, and this has been partially corrected by a celluloid corset. The other men with solid ankylosis walk without difficulty; the sole of the shoe on that side is made thicker to balance the shortening of the leg.

Lyon Médical

October, CXXVI, No. 10, pp. 445-492

35 Hemorrhage from the Spleen; Two Cases. Brian.—p. 445.
36 Intravenous Vaccine Therapy of Typhoid. Petzetakis.—p. 449.

Paris Médical

October 6, VII, No. 40, pp. 273-288

37 *Ophthalmology in 1917. F. Terrien.—p. 275.
38 *Better Stumps for Artificial Eyes. (Amélioration des moignons oculaires en vue de la prothèse.) F. Terrien.—p. 277.
39 Advantages of Mercury Salicylarsinate in Treatment of the Eye and General System. A. Terson.—p. 282.
40 Choked Disk after War Wounds. A. Cantonnet.—p. 286.
41 Care of the Wounded after Operations. A. Mouchet.—p. 287.

37. War Wounds of the Eyes.—Terrien remarks in the course of this review of ophthalmology in 1917 that the visual disturbances of shell shock are generally transient, but that photophobia, spasmodic myopia, amblyopia or restriction of the visual field may be quite durable. Some think they are of hysteric nature. Vaccination against typhoid may bring on a relapse of iridocyclitis. As the uveal tract is so vascular, it is easy to understand how the vaccination may induce the localization there of casual infection, analogous to the oculoreaction to tuberculin. He has encountered one case of grave purulent iridocyclitis after the vaccination. Sometimes the vaccination started up metastatic ophthalmia, herpes of the cornea or infectious trigeminal neuritis, in those already bearing the seeds of such. Glaucoma secondary to iridocyclitis may rupture under the influence of the reaction to the vaccination. A reaction on the part of the meninges might entail lesions of the optic nerve and tract or ocular paralysis. Morax has warned that a primary acute glaucoma might rupture under the reaction to the vaccine, but he knows of no scientific reason why chronic glaucoma should be aggravated by it. To admit a causal connection, the aggravation must have occurred at the time of or soon after a reaction violent enough to modify the temperature. Ophthalmoscopic and medical examination should precede the vaccination, and he advises exclusion of all with syphilis, tuberculosis, or joint troubles when there is a history of lesions of the uveal tract, especially in persons over 35 or 40. The strict asepsis and antisepsis with war wounds have rendered sympathetic ophthalmia of less frequent occurrence than was anticipated, but a few cases have been encountered. Possibly they might have been more numerous if the patients had been kept under observation longer. A sympathetic reaction is comparatively common, appearing early and disappearing after enucleation. The poisonous drift gases may induce iritis or neuroretinitis, but the course has proved essentially mild.

38. Need for Protection of Soldiers' Eyes.—Terrien expatiates on the importance of a good fitting artificial eye for the later welfare of the wounded, saying that the question of better stumps is growing more and more important as the number of eyes injured beyond redemption is unfortunately increasing every day. This is owing to the more intensive use of grenades and small shells which break up into large numbers of small fragments, and the lack of any device to protect the eyes. No practical means has been found to protect the eyes, and yet, according to his latest notes, 92 per cent. of the perforating injuries of one or both eyes were made by such small flying fragments that the slightest protecting device would have turned it aside and saved the eye. A thin metal shell with a slit permits excellent vision while it would save the eyeball in the majority of cases. The Société d'ophthalmologie adopted in June, 1916, a resolution setting forth the advantages of some such device to protect the eyes, and the authorities conceded the correctness of the principle, but nothing to speak of has been done toward its realization in concrete form. The various measures necessary to ensure a good stump are described in detail, bearing in mind that the withered eyeball itself is the best stump of all.

Presse Medicale, Paris

September 24, XXV, No. 53, pp. 545-560

42 Protection of the Child among the Ancient Romans. IV. E. Jeanselme. Titlepage.
43 *Rebellious Fistulas in the Thorax. L. Bérard and C. Dunet.—p. 545.
44 *Practical Treatment of Syphilis. P. Chevallier.—p. 547.
45 *Tetanus and Tetanophobia. M. Couteaud.—p. 550.
46 *Hot Air Douches in Treatment of War Wounds. J. Bandaline and J. de Polinkoff.—p. 551.
47 *Graduated Spiroscopic Exercises in Training the Respiratory Apparatus. J. Pescher.—p. 552.
48 American Method of Anesthesia by Insufflation. J. Luzoir.—p. 555.

43. **Rebellious Fistulas in the Thorax.**—Bérard and Dunet show by several roentgenograms that often the reason why a fistula persists after a war wound of the chest is that some of the ribs have become soldered together by infected callus. Nothing short of resection of the pathologic tissues will ensure the healing of these fistulas. Roentgenoscopy will reveal the callus and thus permit effectual treatment.

44. **Practical Treatment of Syphilis.**—In concluding this presentation of the present status of treatment of syphilis, Chevallier emphasizes that treatment, even vigorous treatment, which is not kept up for years, does not protect against relapses. He insists that the action of soluble mercurial salts can be only transient. The insoluble salts ward off recurrences better as their action is prolonged longer. Recurring manifestations of the syphilis generally appear first on mucous membrane. The drugs should be given in the largest doses that can be borne without disturbances or only minimal disturbance, and the physician must keep in close touch with the patient. The physician must back up the patient's flagging will, and for this reason among others it is best to give the drugs by injection. The patients generally return to complete a definite course of injections. When it is concluded, he gives a card with the date when the next series of injections has to begin. There is only one contraindication, namely, impermeability of the kidneys. The intervals between courses should never be longer than six weeks. His course of arsenobenzol begins with 0.3 gm. once a week, increasing to 0.75 or 0.9 gm. by the fifth or sixth week and then dropping down again. The rich and the indigent are provided for, he says, but to date no provision has been made for the demi-indigent—those accustomed to paying for medical care at some sacrifice, but unable to bear the expense of four years of treatment. Arrangements must be made for these demi-indigent. Possibly the best plan to avoid infringement on professional secrecy would be to have a dispensary devoted to "chronic diseases"—for all affections which by their persistency condemn the demi-indigent to ruin or abandonment of treatment.

45. **Tetanophobia.**—Couteaud says that in his district every one who gets even the slightest kind of a wound, civilians and soldiers alike, rush to the hospitals for an injection of tetanus serum. The nurses are kept injecting it all the time, so it is flowing in a constant stream. He deplores this as a waste which may deprive the legitimate cases of the precious serum. It is a pity that bacteriologists as yet have been unable to detect in the blood the antitoxic elements which would reveal whether the wounded person is fitted or not to resist the tetanus germs. He is confident that there must be something of the kind, as farmers so seldom develop tetanus although so often exposed to it. We might learn something in this line by comparing the incidence of tetanus after war wounds among soldiers recruited from towns and those from rural districts, whether there is not a professional physiologic vaccination from repeated small inoculations.

46. **Hot Air Douches in Treatment of Torpid War Wounds.**—This communication from a base unit on the southwestern coast reports continued fine results from the jet of hot air turned on lesions in soldiers that refuse to heal promptly, especially the effects of frostbite of the feet and torpid infectious processes in general. The germ count is made before and after the hot air douche, to keep control of the progress, the findings confirming the prompt sterilization of the tissues and the speedy healing thereafter. The importance of having arrangements for aerothermotherapy as an adjunct to every surgical service is emphasized, and an illustrated description of a few cases is given to show the immediate benefit in the relief of pain and the prompt healing of lesions that had been dragging along for months.

47. **Therapeutic Spiroscopy.**—Pescher's spiroscope has already been described in these columns, and he here shows how it can be systematically applied in training the respiration. The long blow tube enters at the side, low down, of a bottle filled with water. The bottle stands on a standard and can be emptied completely at a single blowing by a person with normal lungs. The bottle is graduated, and the individual can see at a glance his respiratory capacity, and can watch it increase as training with this spiroscope expands the breathing area of his lungs. A stopcock on the tube allows the breathing exercises to be graduated for hyperfunctioning. In every case of war wound of the chest, there comes a time when these spiroscopic exercises are extremely beneficial. Also in pleurisy, and especially for persons who seem to be candidates for pulmonary tuberculosis. When the bulbar respiration center has been progressively inhibited by repeated nervous shocks, it may function so sluggishly that the whole system suffers from lack of the normal vigor of the respiratory movements; the resulting anemia, autointoxication or neuropathic depression all show marked improvement under spiroscopic training of the respiratory apparatus. The fact that the patient can see for himself by the drop in the water content of the jar just how he is progressing, gives zest to the exercises.

Progrès Médical, Paris

September 22, XXXII, No. 38, pp. 311-320

49 Three Neuromuscular Syndromes. H. Gougerot.—p. 311.
50 *Spontaneous Rupture of Heart. J. Tapie.—p. 314.
51 Medicine in Recent Fiction. P. Voivenel.—p. 315.
52 Propaganda of Hygiene by the Profession. A. Satre.—p. 317.

September 29, No. 39, pp. 321-330

53 Trench Foot. Renard and P. Blum.—p. 321.
54 Regional Anesthesia of the Arm. H. P. Achard.—p. 323.
55 *Suprarenal Symptoms in Malaria. C. Garin, Sarrouy and Pouget.—p. 324.
56 Pathology of the Senegalese Troops Now in France. Ardoin and Bonnette.—p. 326.

50. **Spontaneous Rupture of the Heart.**—Necropsy disclosed that the spontaneous rupture at the apex in a man of 49 was result of infarction from atheroma and thrombosis of the anterior coronary. The man was robust, with no specific pathologic antecedents, but for a few months had had asthma and symptoms of asystole and albuminuria.

55. **The Suprarenals in Malaria.**—Garin and his co-workers report that 4 per cent. of a group of 590 men with malaria presented symptoms showing that the suprarenals had been damaged by the infection. Their extreme pallor and lassitude, blanching of the mucosa, changes in pigmentation, emaciation, anorexia and resistance to the effect of a change to the mountains, testified to the suprarenal insufficiency. The general depression of the whole organism was shown by the tardy recuperation after the attacks, and the slight benefit apparent under tonics until epinephrin or suprarenal tissue tablets were given in addition. The prompt improvement then was striking.

Revue de Médecine, Paris

XXXV, No. 2, pp. 73-132

57 *Deficiency Diseases. (Les maladies par carence.) E. Weill and G. Mouriquand.—p. 73. Commenced in No. 1, p. 1.
58 War Epidemics of Typhoid Group. D. Olmer.—p. 108.

57. **Deficiency Diseases.**—Weill and Mouriquand's monograph contains an account of much experimental work besides extensive clinical experience. They discuss in detail the deficiency disturbances that developed in pigeons fed with decorticated or sterilized cereals, peas and beans; also the beriberi and experimental scurvy in animals under similar circumstances. They discuss further the deficiency in vitamins or ferment substances in relation to the army ration and the question of bread making. Among their conclusions from this and preceding research are that beriberi cannot be ascribed to decorticated rice alone, as similar hulling of all other grains and legumes is liable to bring on the symptoms of beriberi. Even sterilization of the unhulled grains may bring on the same set of symptoms. The nervous mani-

festations from these deficiency disturbances open a new chapter of pathogenic neurology. They reiterate that "life is necessary to life," and that a rational diet should include the digestible maximum of fresh, "living" foods. The use of ultra refined flour, of sterilized meats, vegetables, milk, etc., kept up too long and too systematically, may be responsible for deficiency disturbances beyond those that fit into the clinical frames of scurvy in young and old, and beriberi.

Correspondenz-Blatt für Schweizer Aerzte, Basel

October 6, XLVII, No. 40, pp. 1329-1360

59 *Dangers and Treatment of Placenta Praevia. A. Labhardt.—p. 1329.
60 *An Embryonal Growth Center in the Crystalline Lens. (Ein embryonaler Kern der menschlichen Linse.) A. Vogt.—p. 1342.
61 *Practical Diagnosis of Duodenal Ulcer. F. Fortmann.—p. 1349.

59. **Placenta Praevia.**—Labhardt reiterates the vital importance of absence of infection when cesarean section is contemplated. Also that cesarean section is the only safe and reliable method for delivering a woman with placenta praevia without injury to the child. Hence the practitioner should get the woman to the hospital as quickly as possible and not allow any internal manipulations, tamponing, etc. All other methods of treatment show a high mortality among the mothers and a frightful mortality among the children, in spite of every effort. To be done under the best conditions, the cesarean section should come early in labor, and the child be extracted before the lower segment of the uterus has been much distended. By this prompt extraction before the placenta becomes separated, we ward off hemorrhage and atony of the uterus after delivery. In the hands of many obstetricians cesarean section has come to have no mortality. It has the further advantage that no germs from the vagina are carried up into the uterus as there is no necessity for version or the inflatable bag. As the uterine vessels are not gaping so much at this time, the danger of air embolism is correspondingly reduced. The general practitioner should insist on the woman's going to the hospital at the first bleedings, whether they occur just before or during labor; he should refrain from internal examination and especially from any tamponing. In the hospital, indications can be met as they arise.

60. **Anatomy of the Crystalline Lens.**—Vogt explains that the posterior surface of the crystalline lens is liable to show grooves and linear elevations indicating some disturbance in growth. There may be whitish lines and other anomalies suggesting an embryonal center of growth. They are found even in children, and he argues that they have something to do with the development of cataract.

61. **Diagnosis of Duodenal Ulcer.**—Fortmann refers to the diagnosis by the general practitioner without laboratory aid, and expatiates on the importance of prompt differentiation of duodenal ulcer. Much loss of flesh and nervousness were prominent symptoms in all his cases, with one exception. One of his patients had correctly diagnosed his own trouble from the clinical picture as he had found it described in a "doctors' book." Blood in vomit or stools may confirm the diagnosis and render radiography superfluous. He advises to have the patient refrain from meat for eight or ten or twelve days before applying the test for occult blood. All such tests have the disadvantage of being disconcertingly sensitive. Repeated negative findings with careful technic are correspondingly instructive as they exclude an ulcer. Hyperacidity is the rule with duodenal ulcer, but anacidity has been encountered by Stierlin and himself, and fluctuating findings in some cases. The practitioner may find Friedreich's swallowed-thread test instructive when the stomach content cannot be obtained directly. He always found the hunger pain, night pain and periodicity of the pains spreading toward the right in the liver region and back. The tender point is two or three fingerbreadths to the right of the median line, outside of the gallbladder, inside of the pylorus point. In one of four cases described in detail, the tender point was to the left of the median line. A second tender point is sometimes found at the end of the right twelfth rib. One of his patients had paid no attention to the pains, which were rather mild, until she had a stool black with blood. Vomiting of blood may occur with duodenal as well as with gastric ulcer. Advanced age does not always turn the scale in favor of cancer; one of his patients was 63, and cases are known with ages older than this. One of his patients, a man of 43, had had symptoms typical of duodenal ulcer for six and a half years when there was severe hemorrhage. There had never been any signs of gastrectasia, but the operation revealed that the ulcer was in the pylorus region. In another case the typical symptoms in a man of 30 had lasted for some time but the stools and radiographic findings were negative. He is evidently a "duodenal-ulcer neurasthenic," and Fortmann remarks that we may expect to encounter such more frequently as the "duodenal triad" is becoming known to the laity.

Gazzetta degli Ospedali e delle Cliniche, Milan

October 4, XXXVIII, No. 79, pp. 1065-1072

62 *Intramuscular Serotherapy in Cerebrospinal Meningitis in Children. F. Fanciulli.—p. 1069.

October 11, No. 81, pp. 1089-1096

63 Acute Pancreatitis. M. Maurizi.—p. 1091.

62. **Serotherapy in Epidemic Meningitis in Children.**—Fanciulli remarks that no serum as yet, by any technic, can do miracles, and the fulminating cases terminate fatally as before. But under other conditions serotherapy can be counted on. He tabulates the details of eleven cases in children in which he injected 10 c.c. morning or evening or both, up to a total of 30 or 40 c.c. in the graver cases, with prompt recovery in all but one child who was left with intermittent fever and chills and enlarged spleen. The children were all treated at home, without isolation or disinfection of the premises beyond having the bed linen boiled. There was no second case in any of the families. Another child was moribund when first seen and no attempt at serotherapy was made. He injected the serum into a muscle.

Policlinico, Rome

October 7, XXIV, No. 41, pp. 1233-1256

64 The Hospital Centers for Specialist Work. Editorial.—p. 1233.
65 *The Subnormal Arterial Pressure with Abdominal Wounds. A. Chiasserini.—p. 1238.
66 Lactic Acid Bacilli Ferments in Therapeutics. G. Monti.—p. 1240.
67 Infant Feeding in Foundling Asylums. O. Viana.—p. 1243.

65. **The Subnormal Arterial Pressure with Abdominal Wounds.**—Chiasserini's long experience with war wounds of the stomach and abdomen has convincingly demonstrated, he says, that the character of the pulse is the guide to treatment, whether to operate or not, and it also affords a basis for the prognosis. He made a special study of the suprarenals from ten men who had died from wounds of the gastro-intestinal tract, securing them a few hours after death. Changes in the suprarenals were constant; they were like those found in diphtheria, all testifying to grave toxic action. When, with an abdominal wound, the pulse is small and fast, and persists thus in spite of measures to combat shock, any operation is contraindicated unless the trouble is from acute anemia. The operation may be successful and the subjective condition good, but the pulse keeps growing worse.

Riforma Medica, Naples

September 15, XXXIII, No. 37, pp. 893-912

68 *Cause of Persistence of Bacilli in Typhoid Convalescents. L. Preti.—p. 893.
69 War Wounds of the Abdomen. O. Finzi.—p. 894.
70 Diphtheria Antitoxin in Treatment of Epidemic Parotitis. E. Salvaneschi.—p. 896.
71 *Treatment of Fracture of the Femur. B. Schiassi.—p. 897.
72 Present Status of War Psychoneuroses. G. Molinari.—p. 898.
73 *Cinematic Surgery: To Facilitate Vitalization of Artificial Limb. E. Aievoli.—p. 902.

68. **Low Agglutinating Power in Typhoid Carriers.**—Preti tabulates the data in thirty-five cases, showing the agglutination during the typhoid and again late in convalescence. When the agglutinating power from two to nearly five weeks after defervescence was 1:40, bacilli were found in the stools. None were found in the convalescents agglutinating at 1:80, 1:160 and 1:320 with the exception of two cases with

bacilli present the twenty-sixth and twenty-eighth days with agglutination at 1:80. Hence the persistence of the bacilli evidently depends on the proportion of antibodies present.

71. **Fractured Femur.**—Schiassi's "decalogue" as he calls it was summarized, November 24, p. 1835.

73. **Cinematic Surgery.**—Aievoli analyzes what has been accomplished to date in the attempts to make possible the direct control of artificial limbs by traction from muscle fibers. Vanghetti's pioneer work in this line of vitalization of artificial limbs was described recently, page 321.

Rivista di Clinica Pediatrica, Florence

October, XV, No. 10, pp. 505-560

74 *Pathologic Somnolency with Lesion in Midbrain. C. Francioni. —p. 505.
75 *Acetonemia. G. Guidi.—p. 549.

74. **Pathologic Somnolency in Young Children.**—Francioni's patients presenting this mesencephalic syndrome were a child of 3 years and an infant of 10 months. In both the somnolency over months was the most striking symptom, and necropsy in the second case confirmed the diagnosis of a brain tumor. It was found in the isthmus of the brain, a vast destructive lesion shutting off almost completely all connection between the front and the hindbrain. The superior nerve centers were thus apparently cut off from the inferior centers as by a laboratory experiment. Both children were tuberculous, with some tendency to internal hydrocephalus.

75. **Acetonemia in Children.**—Guidi comments on the difficulty at times of distinguishing between acute appendicitis and an attack of periodical vomiting with acetonemia. Palpation of the appendix region through the rectum is sometimes the only means to clear up the case. He advises in case of persisting doubt to remove the appendix. There is always a possibility that the two affections may be associated. Three cases are described in detail in which the profuse elimination of acetone by the breath and kidneys was accompanied by frequent vomiting and occasional severe diffuse pains in the abdomen, the pulse fast and small, and the children were restless and felt badly, and there was no stool. The abdomen was distended but this was uniform, and no specially tender points could be found. While the surgeon was studying the first case with the internist, all the symptoms suddenly subsided. No purgatives had been given but slight peristaltic movements were detected while the abdominal walls were not contracted. The acetonemia subsided under large doses of sodium bicarbonate by the mouth or rectum. There was no movement of the bowel until the fifth day, but by the end of the week the child seemed to be perfectly well again. This child and the second were under 3, the other was 6. This was the first attack of acetonemia in the last two cases; the first child had had at 18 months a similar attack of vomiting with abdominal symptoms. The intestines in the three cases seemed much dilated—evidently a paresis from the toxins in the blood. Guidi has encountered other cases of acetonemia in which there was paresis of the bladder and retention of urine, compelling catheterization, but these disturbances are always transient and disappear with the acetonemia.

Semana Medica, Buenos Aires

August 9, XXIV, No. 32, pp. 149-176

76 *Exclusive Carbohydrate Infant Feeding and Its Evil Effects. M. Acuña.—p. 149.
77 Treatment of Ankylosis by Interposition of Tissue. E. M. Olivieri —p. 153. Continuation.
78 *Charitable Institutions at Buenos Aires. E. R. Coni.—p. 160. To be continued.
79 Ethyl Chlorid General Anesthesia. B. Echevarria, B. D'Ascoli and A. Iturrieta.—p. 162.

76. **Evils from Exclusive Carbohydrate Feeding of Infants.**—Acuña reports two cases of trophy from too exclusive carbohydrate feeding in infants about 6 weeks old, fatal in both. Such children have a good appetite and the digestion seems to be perfect, but they do not increase in weight and height. When they are less than 6 months old, they generally succumb even when changed to breast milk.

78. **The Charitable Institutions of Buenos Aires.**—Coni here gives the first of thirty chapters of his work on the hospitals, asylums and other charitable institutions of Buenos Aires. He says that so much has been done in this line of late years that Buenos Aires now compares favorably with Paris, London, Berlin and New York in this respect.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

September 1, II, No. 9, pp. 751-830

80 The Value of Vivisection for Medical Science. G. van Rijnberk. —p. 755.
81 *Roentgenotherapy of Surgical Tuberculosis. A. van Ree.— p. 767.
82 Enucleation of the Eyeball and Preparation for Wearing an Artificial Eye. H. J. L. Struycken.—p. 779.
83 Experimental Physiology in Relation to Psychology. F. J. Soesman.—p. 781.
84 Medical Statistics and Psychanalysis. D. S. Henkemans.—p. 786.
85 *Congenital Absence of Skin Reflexes and Tendon Reflexes. G. C. Bolten.—p. 788.

81. **Radiotherapy of Surgical Tuberculosis.**—Van Ree gives fifty-seven double illustrations showing the condition before and after roentgen treatment, mostly of tuberculous glands in the neck. In this group of tuberculous glands a complete cure was realized in thirty-five out of forty-eight; only two failed to show marked benefit. The cases showing mere improvement to date may go on to a complete cure in time. One great advantage of the treatment is that the healing proceeds without leaving disfiguring traces. From eight to ten exposures were the average course, some cases needing very few and others requiring a whole year. The exposures were about 4 H. units and the intervals about three weeks. These small doses do not modify the tissues around so as to make operative measures more difficult in case they are deemed necessary later. Tuberculous lesions in small bones healed promptly in seven of his thirteen cases of this kind. In one case of a tuberculous lesion in the sternum, the necrotic masses were excised, followed by smooth and rapid healing under the exposures. The benefit in some cases of bone and joint tuberculosis was so striking that further efforts in this line are encouraged even although this treatment failed in a certain proportion of the old cases, especially in adults. Certain experiences on record warn against exposing the larger joints of children to the roentgen rays as liable to interfere with normal growth later.

85. **Congenital Absence of Reflexes: Skin and Tendon.**—Bolten reported recently the case of an apparently healthy man of 22 in whom neither the knee-jerk nor Achilles reflex could be elicited. There was nothing to suggest tabes, and Bolten accepted the areflexia as a sign of degeneracy. This seems probable also in a second case here described at length. This patient was a woman of 30. She displays a slight neuropathic tendency and is somewhat nervous, but otherwise seems sound. None of the skin and tendon reflexes can be elicited. The periosteum reflexes are faint. As both persons seem normal in every other respect, the anomaly in regard to the reflexes can be explained, he thinks, only by assuming a congenital inferiority, that is, a more or less pronounced degeneracy. There was no trace in either case of hypotony or disturbance in the muscle sense.

Hygiea, Stockholm

LXXIX, No. 16, pp. 801-864

86 *Influence of Physical Training on the Morphologic Development of the Motor Nervous System. E. Agduhr.—p. 801.
87 *Influence of Posture on Physical Development of Schoolchildren. T. Resmark.—p. 829.

86. **Influence of Training on the Physical Development of the Nervous System.**—Agduhr reports a pronounced influence from systematic exercises on the development of the motor nervous system of young cats. Other kittens from the same litter had been kept in cages without much chance for exercise, and the difference was marked by the end of seven months. The training of the kittens consisted in their climbing up a long burlap curtain to a graduated height, and repeating at least a hundred times a day. Other tests were made on other warm and cold blooded animals. The findings apparently demonstrate that moderate graduated training of the growing individual causes hypertrophy of most of the

elements of the peripheral motor nervous system, and an increase in the numbers of fibers in the conducting tracts. The brain also grows to be larger than in the controls.

87. **The Habitual Posture of Schoolchildren.**—Resmark measures and compares the findings by means of a frame on a standard. The sides of the frame are marked off in centimeters for the height, and the top and bottom of the frame are marked off to each side from a central zero. The child stands in profile behind the frame, the camera at a fixed distance in front. The research was undertaken to study the influence of the habitual posture on the physical development of the child.

Norsk Magazin for Lægevidenskaben, Christiania

October, LXXVIII, No. 10, pp. 1129-1240

88 *Calcification of the Lungs. F. Harbitz.—p. 1129.
89 Extension Bandage without Plaster. S. Widerøe.—p. 1163.
90 The Heart Complications with Diphtheria. J. Holst.—p. 1167.
91 The Banti's Disease Question. C. Schiøtz.—p. 1176.
92 *Diabetes Insipidus. L. Nicolaysen.—p. 1184.

88. **Calcification of the Lungs.**—Harbitz has previously published some cases of calcium metastasis, calcium gout, and universal calcinosis. He here reviews these experiences and the literature on the subject, and reports the details of a case in which both lungs were so full of calcium that it is surprising that they were able to work at all. The lungs weighed six times the normal weight, and stood up on their own basis. The calcium was evenly distributed throughout, not in deposits around vessels. There had been no preceding destructive bone affection, so the calcification was primary and not metastatic. Six other primary cases are on record which he cites in turn. In his case the kidneys were sound but there had been chronic gastritis with occasional hematemesis. The patient was a woman of 41 with a history of acute articular rheumatism as a child and again three years before, and a chronic tendency to shortness of breath on exertion and to slight cyanosis. She entered the hospital on account of anasarca and ascites; the pulse was 104 and regular, respiration 34 and audible. There were 8,448,000 reds and 11,600 whites. Percussion showed resonance over the lungs with somewhat prolonged expiration and fine crepitation. The woman died in three weeks under the diagnosis of heart disease. The various theoretical possible causes for the extreme calcification of the lungs in this case are discussed, as nothing was found at necropsy to explain it.

92. **Diabetes Insipidus.**—In the first of the two cases reported, a previously healthy woman of 44 developed after her tenth pregnancy a condition of general weakness with tendency to obesity, polyuria, polydipsia and polyphagia. The same set of symptoms was presented by the second patient, a septipara of 34, subject to epilepsy. Tests with pituitary extract and abstention from fluids showed good concentration level. The polydipsia seemed to be primary and there were other features suggesting that the trouble was some disturbance in the centers in the third ventricle.

Ugeskrift for Læger, Copenhagen

September 6, LXXIX, No. 36, pp. 1479-1520

93 *Carbohydrate Dyspepsia and Xerophthalmia. H. Rønne.—p. 1488.

September 13, No. 37, pp. 1521-1564

94 *Historical Sketch of Prostitution during Various Wars. A. L. Fønss.—p. 1521. Commenced in No. 36, p. 1479.
95 Atresia of the Hymen with Rupture of Tube from Accumulation of Blood. J. E. Kieler.—p. 1538.

93. **Carbohydrate Dyspepsia and Xerophthalmia.**—Rønne, as an ophthalmologist, differs from both Bloch and Monrad whose views were recently summarized in these columns, Sept. 29, 1917, p. 1122. He relates that he has had cases of xerophthalmia in infants who had been fed casein and little carbohydrates. He emphasizes that untreated xerophthalmia is practically always fatal. The grave symptoms including the xerophthalmia come on suddenly, suggesting, he thinks, that lack of vitamins is probably responsible. An excessive carbohydrate diet could scarcely induce such a sudden and stormy onset of the xerophthalmia and other symptoms. No instance is known to him of carbohydrate dyspepsia, without xerophthalmia, proving so rapidly fatal. The immediate cause of death is the lowered resisting powers of the child (pneumonia), and he thinks there is much to sustain the assumption that both carbohydrate dyspepsia and avitaminosis are involved. Xerophthalmia is frequently but not always of dietetic origin. It may occur in the tuberculous. Here it seems to depend not on the intake but on the power of assimilation, the inability to utilize the requisite elements although they are supplied in the food. There seems to be an individual power of assimilation, as some children apparently do well on a diet that induces severe xerophthalmia in another.

94. **Prostitution in Wartime.**—Fønss traces the history through the ages of attempts to control the spread of venereal disease, and especially in armies and discusses what is being done during the present war in this line. Among the data cited is Dreyer's statement that 89 per cent. of the registered prostitutes in Berlin gave a positive Wassermann reaction, and Sperk's report that 772 prostitutes who had contracted syphilis were known to have had 2,135 recurrences during the first four years after infection. Fønss mentions that polygamy was introduced in Bohemia after the Thirty Years War. He regards as of great and practical interest the regulations in regard to prostitution promulgated in Austria since the war began. They specify with minute detail the prophylactic measures, the preliminary and terminal salves and rinsings which the prostitute must use herself and offer to her customer. The medical inspector must verify that she has the preservatives, etc., on hand. Fønss remarks that whether the minute directions are followed or not is a question, but the emphasis placed on them by the official decree impresses on all concerned the importance of preservatives.

He relates that the *Dermatologische Wochenschrift* Nos. 11 and 12, 1917, contains the report of a committee appointed by the Reichstag to study the venereal disease question. The main points of the report are the recommendations that professional secrecy should be abrogated when it is a question of venereal disease, that is, the case should be notified by name; that transmission by venereal disease should be penalized; and that the state examination for license to practice should include examination in skin and venereal diseases. Dreuw emphasized that the notification by name is absolutely impracticable unless it is to be made to a central federal bureau which will keep the records for the entire country, and organize uniform measures under the seal of strict secrecy except for the parties directly involved. Fønss adds that compulsory notification to the police of contagious venereal disease is already decreed in Schleswig-Holstein. In No. 9 of the *Wochenschrift*, Hecht published an appeal for the application to prostitution of the principle of the Gøteborg system for reducing the evils of the liquor trade, that is, placing the whole business in the hands of a central organization which aims to make only a small profit on the capital invested. Fønss remarks that this suggestion has much to commend it. It would thus be possible to ensure completely hygienic conditions free from pecuniary speculation. The privately owned brothel, he reiterates, must be stamped out.

Fønss relates that it was not until about 1600 that the connection between prostitution and disease in the soldiers was definitely recognized. Among the efforts to rid the army of the female camp followers he mentions Marshal Strozzi's drowning of 800 at one time in the river Loire (1570), and Gustavus Adolphus' promotion of marriage among his troops (1621). During the Thirty Years War, in 1648, history records that to the army of 40,000 soldiers entitled to rations there were 140,000 followers not on the ration list. The women aided in cooking the food, mending the soldiers' clothes and nursing them when sick. Johann of Nassau proposed in 1608 to substitute men nurses and cooks for women workers, alleging as the chief reason the prevention of infectious diseases. The French commander, Carnot, in 1793 drove away women followers of the camp to the number of 3,000, saying they did ten times more harm to the army than the enemies' guns. Fønss credits most of his historical data to I. Bloch's large work, "Die Prostitution," 1912.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. LXIX, No. 23 Chicago, Illinois December 8, 1917

THE TREATMENT OF SOME CASES OF SO-CALLED "PERNICIOUS" ANEMIA

A REGIMEN THAT HAS BEEN FOUND HELPFUL [*]

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BALTIMORE

"Pernicious anemia," so called, formerly often overlooked, is now generally recognized, when encountered, by physicians who have been trained in the modern methods of examining the blood. Indeed, once the anemia is well developed, the appearance of the patient is so characteristic that its existence is likely to be suspected at first sight before any examination of the blood has been made. In the office of a consulting physician, where these patients are often entering, it is by no means uncommon to have an observant office secretary, who has grown familiar with the pallor, the lemon-yellow tint to the skin, the weakness and the dyspnea, remark that "the patient coming in looks as though he had pernicious anemia."

Though it is easy to place a patient of this sort in a great group designated "pernicious anemia," we know now that this group does not represent a unity. And, of late, we have learned to divide the general group into several subgroups, our classifications being based partly on the blood findings, partly on etiologic considerations. Formerly, it was common to speak of pernicious anemia as a primary or idiopathic anemia, to distinguish it from a secondary anemia due to disease of some organ, to hemorrhage, or to some other known etiologic factor. The terms "primary" and "secondary" anemia are still used, though we now realize that, in the last analysis, there can be no such thing as a strictly "primary" anemia. Again, Ehrlich's attempt to separate pernicious anemia from other anemias on the basis that the regenerative forms of red corpuscles found in the blood are of embryonal rather than of postembryonal type (megaloblasts rather than normoblasts) broke down when it was found that this criterion, though a helpful one, does not admit of strict application. Though no basis of classification of the severe anemias is as yet wholly satisfactory, a separation of those due to increased blood destruction (the hemolytic anemias) from those due to loss of blood by hemorrhage and from those due to defective or decreased blood formation has been found helpful. The old group of so-called "pernicious anemias" contained subgroups belonging to at least two of these categories. Thus formerly the severe hemolytic anemias and the aplastic, or aregeneratory, anemias were lumped together in the pernicious group. By far the majority of cases that were designated pernicious anemia were, however, hemolytic anemias due to increased blood destruction; only a few of them were aplastic anemias due to decreased blood formation. And the matter was further complicated when it was discovered that a hemolytic anemia may sometimes, after exhaustion of the regenerative power of the bone marrow, enter into an aplastic stage. And, finally, an analysis of the severe hemolytic anemias themselves showed that they, in turn, are divisible into further subgroups depending on their etiology. Among these subgroups may be mentioned (1) the hemolytic anemia due to invasion of the intestine by *Dibothriocephalus latus;* (2) the hemolytic anemias due to syphilis, to carcinoma, and to intoxications in the puerperium; (3) the hemolytic anemias due to certain known chemical poisons, as potassium chlorate, nitrobenzene and phenylhydrazin, and (4) the hemolytic anemia that accompanies congenital hemolytic icterus. But after these subgroups had been recognized, it was found that the majority of severe chronic hemolytic anemias still remained unaccounted for, and it has been, and still is, customary to refer to these cases of unknown (or at least unsettled) etiology as "Addisonian anemia," or "Biermer's anemia," or as the "Addison-Biermer type of pernicious anemia."

Without further introduction, we may say that it is the last group of severe hemolytic anemias mentioned, and to it only, to which we shall refer in the present paper. We must agree with William Hunter and other writers who deprecate the use of the ill defined term pernicious anemia, unless, when it is made use of as a designation, the clinical description is such that the reader will have no doubt as to just what the writer means by it. Since the blood picture in the Addison-Biermer type of anemia is indistinguishable from the blood picture of the forms of hemolytic anemia of known etiology, some of which are curable, it is conceivable that still other groups will be separated out from the Addison-Biermer group as soon as their cause has been discovered. Or it may even be that the cases now remaining in the Addison-Biermer group will later be proved to have a single cause (focal infection? enterogenous intoxication?). The disease we are referring to has been so fully described in modern textbooks[1] that no extended account need here be given. It will suffice to recall that (1) it is commonest in people of middle age; (2) the well to do are affected almost as often as the poor; (3) men and women are affected in approximately equal numbers; (4) the onset is, as a rule, insidious, the patients complaining of weakness without apparent cause, of increasing pallor (with straw-colored tint to the skin), of dyspnea, of gastro-intestinal disturbances, and of nervous symptoms; (5) the urine is usually high colored and contains an increased amount of urobilin; (6) there is always gastric anacidity, and (7) the blood changes characteristic of a hemolytic anemia are demonstrable (reduced red count; anisocytosis; poikilocytosis; high color index; often regeneration signs, including nucleated red cells, polychromasic red cells and basophilic stippling; moderate leukopenia with relative lymphocytic increase, and a diminished number of platelets). There is often a little fever, but not always. Numbness and tingling in the hands or feet are not uncommon; in the later stages, the anesthesias, paralyses or ataxias due to the lesions in the spinal cord described by Frank Billings and others may be encountered. Pyorrhea alveolaris, peridental abscesses or other signs of oral sepsis may be present. Remissions in the course of the disease are common. They may occur spontaneously; more often, they follow, and seem to be produced by the application of one or another form of therapy. When a remission occurs, the patient may remain well for months, or even for years. Several exacerbations, separated by remissions, may be encountered in a single patient. Clinical experience teaches us to be very guarded regarding prognosis, for in the majority of cases, sooner or later, a relapse occurs that does not yield to treatment, but goes on to a fatal termination.

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[*] From the Private Ward Service of the Medical Clinic of the Johns Hopkins Hospital.

[*] Read before the Section on Practice of Medicine at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

[*] Owing to lack of space this article has been abbreviated in The Journal by omission of some of the case reports. The complete paper appears in the Transactions of the Section and in the author's reprints.

[1] Cabot, Osler and McCrae: Modern Medicine, Ed. 2, 1915. Barker: Chronic Hemolytic Anemia of Unknown Etiology, Clinical Diagnosis of Internal Diseases, 1916.

UNSATISFACTORY STATE OF PREVIOUS PLANS OF THERAPY

The bibliography of the subject contains great numbers of reports on the various methods that have been used in the treatment of pernicious anemia, and certain of these methods have been, and still are, warmly advocated by their adherents. Their very multiplicity is evidence that in none of them has, as yet, a really satisfactory plan of therapy been found. Indeed, until the etiology and the pathogenesis of the Addison-Biermer type of anemia are better understood, and until more is known of the mechanisms of pathologic hemolysis and of regenerative hematopoiesis, an intirely satisfactory method, applicable in all cases, need scarcely be expected.

Among the forms of therapy that are most in vogue may be mentioned (1) dietetic-hygienic measures; (2) pharmacotherapy (iron, arsenic, quinin, hypophosphites, cholesterin, glycerin, oxygen inhalations, hydrochloric acid, intestinal antiseptics, salt infusions), radium, thorium and the roentgen ray; (3) subcutaneous or intravenous injections of whole or of defibrinated blood; (4) the combating of oral, gastric and intestinal sepsis, and (5) splenectomy.

William Hunter did a great service in emphasizing the importance of not being content with the application of single measures in the treatment of addisonian anemia, urging a "general management of the case, with close observation of all its features, especially of its gastric and intestinal symptoms, of its fever, and of its hemolytic symptoms, extending not merely over the period of acute illness, but also over many months and years subsequent to the first remission."

In this paper we wish to make no extravagant claims for the methods we have employed, but desire simply to set forth a general regimen that, during the past few years, has, when it has been systematically applied, yielded favorable results in at least one group of cases of anemia of the Addison-Biermer type. We say "one group of cases," for we have had other cases that have not responded favorably to the regimen. Why the one set of cases responded whereas another set did not, we do not know. Thus far, we have been unable satisfactorily to differentiate between the two classes of cases before the therapy has been applied.

REGIMEN USED BY THE AUTHORS

1. *The Diagnostic Study.*—When an anemia of the Addison-Biermer type is suspected, the patient is sent at once into a *private room in the hospital,* where the physical examinations and laboratory tests are made with the least possible discomfort to the patient and with avoidance of exertion on his part. If the anemia is severe, we ask the patient to give himself over to us entirely for a time, gaining his *consent to forego both letters and visits,* even from members of his family, for a time. He is required to remain in bed, undressed, constantly, the *rest in bed* being made as nearly absolute as possible, aside from the interruptions necessitated during the first week by the application of diagnostic methods. An experienced *special nurse* is secured whose sole duties consist in administering to the care and comfort of the patient, tactfully securing observance of all directions issuing from the physicians.

After the anamnesis has been recorded, and the general physical examination of the different systems made, the blood, gastric juice, feces and urine are carefully studied and a thorough *search for focal infections* is undertaken. In this search, the special domains of the body known to be prone to focal infection are closely examined, whenever possible by men who devote their whole attention to particular fields. Thus the teeth and gums are inspected by a consulting dentist, expert in oral diagnosis; the extent of any pyorrhea present is reported; roentgenograms of dead teeth are made and the films closely examined for periapical areas of resorption and for paradenal infection. Glossitis, or stomatitis, if present, is carefully noted. A nose and throat specialist is asked to report on the condition of the nose, throat, ears and paranasal sinuses as revealed by direct inspection and by transillumination. In addition, roentgenograms of the paranasal sinuses by the method of Waters and Waldron are made in every case as a supplement to, and control of, the rhinologist's examination. The digestive tract, already studied by physical and chemical methods, is further examined by roentgenoscopy (after barium intake), and if there is any suspicion of ulcer, of appendicitis, of cholecystitis, of ileal or cecal stasis, or of diverticulitis, serial roentgenograms are also made. The urogenital tract is subjected to special examinations also, urethritis, cystitis and pyelitis being sought for in both sexes, in addition to a search for prostatitis and seminal vesiculitis in the male, and for vaginitis, cervicitis, endometritis and pelvic inflammatory disease in the female.

2. *Surgical Treatment.*—In case focal infection is found, even though it appears to be trivial, we usually attempt to eradicate it, for in our experience it pays in the severe anemias, just as in the arthritides, to be radical rather than conservative in the treatment of any infection found.

In the mouth, stomatitis and glossitis receive appropriate local applications; infected teeth are extracted and the sockets are curetted and treated for a few days with iodin solution; gingivitis and pyorrhea alveolaris are treated by a pyorrhea specialist. Any teeth loosened by pyorrhea are extracted. Pyorrheal pockets are carefully curetted and locally treated. After the mouth has been put in good condition, the patient is instructed in the details of a proper mouth toilet, the nurse seeing to it that the technic is acquired and regularly applied.

In the nose, throat and ear, any active infection found is treated at once. For example, a suppurating sinus (antrum, ethmoid, etc.) will be drained; infected adenoids or badly infected tonsils will be removed, though great care should be taken not to subject the patient to an operation on the tonsils merely because they are adherent, or because tonsillitis has previously existed. Here the common sense of the physician in charge may often be required to check the *cacoethes secandi* of an overzealous specialist. Similarly, the best judgment of the physician will be called on in deciding for or against operation for suspected infection elsewhere (gallbladder, appendix, renal pelvis, endometrium, etc.).

In our experience, infections of the teeth and gums have more often than any other infection required immediate attention in pernicious anemia. Rapid improvement has so frequently followed the treatment of such oral sepsis that we cannot help but feel, with William Hunter, that this side of the treatment is, in many cases, very important, and that poisoning from oral sepsis may, in some cases at least, play an etiologic rôle.

It is surprising how well patients with severe hemolytic anemia bear the operations necessary for the removal of foci of infection. At first we were loath to permit even minor surgical operations on these patients, but after a few trials we became convinced that our reluctance had been unfounded. Even with a red corpuscle count as low as 1,500,000 and a hemoglobin of 30 per cent., the patients stand, without harm, a short general anesthesia for extraction of teeth, or for such a procedure as the puncture and cleaning of an infected antrum. It has been rare, too, to see any unusual bleeding follow these minor surgical measures. Should any major operation be indicated, it is best deferred, unless very urgent, until a decided improvement in the condition of the blood has been obtained. Thus one of our patients, who suffered from a cystitis, due to leading a catheter life because of prostatic hypertrophy, came in with a hemoglobin percentage of 38 and a red corpuscle count of 1,400,000. He had several infected teeth, which were removed at once. The blood rapidly improved, and when the hemoglobin had reached 80 per cent., we asked Dr. Young to remove the prostate. The patient bore the operation perfectly well, the cystitis soon cleared up, and he has remained well since.

3. *Dietetic Treatment.*—We believe that attention to the diet of the patient is especially important. Gastro-intestinal disturbances are so common in the disease that they have come to be looked on as more or less characteristic of the symptomatology. Owing to the gastric anacidity there is hypermotility of the stomach, too rapid emptying of that viscus, and frequently diarrhea. The disinfectant properties of the gastric juice are lost, owing to the absence of hydrochloric acid, and abnormal fermentative processes doubtless occur. Eructations, meteorism and general abdominal discomfort are common, and there are sometimes critical exacerbations of these abdominal disturbances. Anorexia is a prominent symptom, and nausea and vomiting are frequently present. It is but little wonder that, as a result of all these conditions, the patients, either on their own initiative, or at the advice of physicians, make attempts to modify their diet so as to secure relief from symptoms. As is well known, these symptoms tend to persist for a time, no matter what kind or quantity of food is ingested. We find that most of the patients that have come to us have reduced their food intake quantitatively far below their needs, and that nearly all are on a qualitatively ill-balanced diet. Moreover, though they may be perfectly willing to rest, their aversion for food and their fear of what may follow eating often make them quite unwilling, and at first even unable, to eat. For this reason, it is our custom to begin, in the severer cases, with the milk diet of Dubois; on the first day we give 2½ ounces of milk every two hours from 7 a. m. to 9 p. m., the two hourly quantity being increased each day until by the sixth day, the patient is receiving some 3 liters (quarts).

On the seventh day, we permit a small piece of bread and a little jam at breakfast time, and at midday we send in a full tray of easily digestible foods. From the beginning, the patient is encouraged to drink all the milk brought to him, regardless of any disinclination he may feel, or of any consequences that may follow it, and the special nurse tactfully but firmly sees that he takes it. Even if there is some vomiting, the milk is given again at the regular times. The same system is followed after the milk diet has been succeeded on the seventh day by a full and varied diet. The patient is encouraged to eat regardless of choice or of inclination, and to empty each dish on the tray. At first the portions sent are not too large, but during the next few days they are rapidly increased in size until the patient is on an abundant roborant diet, rich in protein, and, if he is thin, in carbohydrate and fat also. At this time, too, the patient is asked to swallow a raw egg (with a little orange juice) immediately after each of the three meals. A little later on, two raw eggs after each meal may be given. In our experience, most patients find it easier, when taking three large meals, to swallow the raw eggs immediately after the meals rather than to take them as "intermediate nourishment." Extra milk, too, is given, as far as possible, with meals, rather than between them. Many patients may, within two or three weeks, be induced to take six raw eggs, a quart and a half of milk and a pint of cream, each day, in addition to three full meals. In this way, the daily dietary of the thin patient may easily reach an intake of 4,000 or 5,000 calories. After the first period is over and some gain in strength has been made, an intelligent patient may often be helped, if eating is still hard for him, by giving him a book like Locke's "Food Values," and asking him to figure out, with the aid of the nurse, the number of calories in the diet ingested and to keep a food chart recording the intake of protein, carbohydrate and fat. Interest is soon aroused in securing a gain in weight, as well as in the rising red corpuscle curve and hemoglobin curve after these begin to show improvement. Not a few anemic patients are overweight, and when such obesity exists, we make sure of a large intake of proteins (meat, eggs), green vegetables in purée form, and stewed fruits, keeping the intake of carbohydrates and fats low, in such instances, so that the total caloric intake does not exceed 1,000 or 1,500 calories per day.

The dietetic treatment can be materially aided, also, by measures taken to improve the appetite and to overcome the oral, gastric and intestinal disturbances (see pharmacotherapy).

4. *Fresh Air.*—The windows of the patient's room are kept constantly wide open, though care is taken to insure his warmth in bed. After the diagnostic study has been completed and any preliminary surgical therapy has been got through with, the patient's bed is wheeled out on a porch, where he spends a large part of each day (preferably in the sunshine); in some cases, the patient is encouraged to spend the whole night in the open air, carefully protected from cold.

5. *Pharmacotherapy.*—This plays a subordinate but, in our opinion, a very helpful part in the treatment of a severe anemia. Above all, pharmacotherapy can be a great aid to digestion in patients who suffer from pernicious anemia. On account of the gastric anacidity, we give from 20 to 30 drops of dilute hydrochloric acid (with or without pepsin) with each meal, and the same dose is repeated about half an hour after the meal. Croftan has used even larger doses and, he believes, with good results. In addition, it is our custom to give 45 grains of pancreatin with 45 grains of calcium carbonate three hours after each meal. In view of the fact that hydrochloric acid is absent from the stomach juice and that the pancreatin is further protected by the alkaline calcium carbonate that is given with it, it seems reasonable to assume that much of the pancreatin may pass through the stomach uninjured and reach the intestine in a form capable of aiding in intestinal digestion. Certain it is that many of our patients on this regimen quickly become able to eat large amounts of food, making but few complaints of abdominal discomfort. We regard the hydrochloric acid treatment, however, as much more important than the treatment with pancreatin and calcium carbonate; and when patients, as some will, complain of finding the swallowing of the pancreatin disagreeable, we omit this part of the treatment.

A bitter tonic—say 10 minims of tincture of nux vomica in 1 dram of compound tincture of gentian—given ten or fifteen minutes before each meal may do something toward improving the appetite, though the hydrochloric acid treatment alone, along with the encouraging psychotherapy, is usually followed by a sufficient food intake. The digestive disturbances often clear up in a remarkable way after the measures described have been applied. If they do not, one must keep a close watch for the development of signs of an underlying malignant disease, for, as is well known, a carcinoma of the stomach may for a time masquerade as a pernicious anemia.

Medical tradition as regards the beneficial effects of arsenic in the treatment of these patients we believe to be well founded, and we have used it in every case. Formerly, we used either liquor potassii arsenitis (Fowler's solution) or pills of arsenous oxid and pepper (Asiatic pills[2]), but of late we have given the arsenic in the form of sodium cacodylate, by intramuscular injection. It has seemed to us best to use rather small doses. We give only 50 mg. per dose, once daily for eight days; after an interval of two weeks, a second course of eight injections is given. This does not upset digestion, whereas Fowler's solution sometimes irritates the digestive tract. In a few cases, we have used small intravenous injections of salvarsan (0.3 gm.), and with Byron Bramwell and with T. R. Boggs have felt that it had a good effect; as a routine mode of giving arsenic to these patients, however, we adhere to the intramuscular injection of sodium cacodylate.

6. *Massage; Exercise.*—As we have said, we keep the patients at the beginning of treatment at as nearly absolute rest as possible. This is especially important, if the hemoglobin percentage is very low. A little gentle massage may, however, be started early in the treatment, its amount and force being increased gradually as the patient's condition improves. We usually order it, as a routine measure, to be given three times a week, taking the precaution to engage the services of operators who have been well trained and who have shown, earlier, good judgment in estimating the quantity and quality of massage beneficial at different stages of severe illnesses. The massage is continued as long as the patient is confined to bed.

The patient is not permitted to exercise, even in bed, until the hemoglobin is above 60 per cent.; after that, however, he is instructed in gentle resisting exercises to be taken in bed. The exercises described in S. Bennett's "Old Age: Its Causes and Prevention," are excellent for this purpose. It is a pity that Bennett's book, aside from the description of the exercises, contains much arrant nonsense and misleading advice; if placed in the hands of patients, they should be warned to pay attention in it to nothing but the exercises.

Rest in bed is maintained until the hemoglobin percentage is above 80 and the red corpuscle count above 4,000,000. Toward the end of this period, the patient is allowed to sit up in bed with a back-rest and to occupy himself with reading and with other mild diversions. He is then permitted to sit up in a chair, for one hour on the first day, for two hours on the second and for three hours on the third day. On the fourth or fifth day he is allowed to walk for five minutes. The exercise is then gradually increased until one or two hours of gentle exercise are taken in the open air daily. When the patient leaves the hospital, he is warned of the danger of relapse, is cautioned against excess in mental or physical exertion, and is advised to have his family physician keep a close eye on him even after apparently complete recovery. He is urged to keep up the hydrochloric acid treatment continuously, for the gastric anacidity probably always persists, and he is warned especially against deviating from the well-balanced dietary, arranged in caloric intake according to his needs.

7. *Other Measures, Including Blood Transfusion and Splenectomy.*—In the one group of cases to which we refer, we have usually had a favorable response with no therapy other than the measures outlined above. Some of the patients showed immediate and rapid improvement. A larger number began to show improvement in the blood findings only after two or three weeks of treatment. In many cases, the red count rose to 4,000,000 and the hemoglobin to 80 per cent. within eight or ten weeks. In some cases improvement began only after patient persistence with the regimen for a much longer period. In the group of patients that did not respond at all to this treatment, the blood picture remained unaltered, or grew worse.

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[2] Asiatic (Tanjore) pills are compounded of arsenous oxid, 5 grains; powdered black pepper, 10 grains; powdered acacia, 3 grains; water, enough to make a mass, divided into twelve pills.

Only after the regimen outlined had been given a thorough trial without benefit did we think it worth while to resort to other measures (transfusions, splenectomy). One exception to this rule has been made: when the red corpuscle count is below 1 million and the hemoglobin percentage below 20 when the patient is first seen, we have found transfusions very useful in raising the blood to a higher level before starting on our usual regimen. When blood transfusions are used, we take especial care to find a suitable donor (negative Wassermann reaction; same group as regards agglutinins and hemolysins).

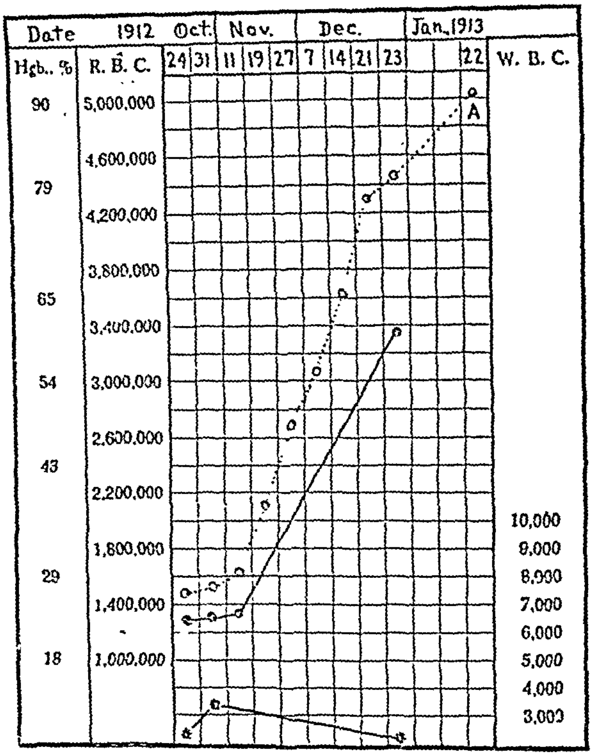

Chart 1.—The blood in Case 1: *A*, reported by home physician. In this and the accompanying charts, the solid line with solid dots denotes red blood corpuscles; the dotted line with hollow dots, hemoglobin, and the solid line with stars, white blood corpuscles.

ILLUSTRATIVE CASES

As examples of favorable response to the method of treatment employed, a few case summaries with blood charts are given. These patients, except in Case 7, are now very well. They all know of the danger of relapse; they are living carefully regulated lives and are having occasional blood examinations made. Patient 7 made a good start, but had a marked setback with fever. Unfortunately, he could not remain at the hospital, but is now trying to gain a remission at his home in a distant state.

Case 1.—*History*.—C. L. M., business man, aged 45, married, admitted, Oct. 24, 1912, discharged, Dec. 23, 1912, complained of indigestion, constipation and "liver trouble." The diagnosis was pernicious anemia, gastric anacidity and oral sepsis. The family history was good. Seven brothers were all well except one, who had had a similar trouble.[3] The patient had had measles, whooping cough and mumps in childhood; pneumonia at 17; tonsillitis at 43; chronic catarrh for twenty years, and otitis media at 30. He was accustomed to three or four colds each year. He had had abdominal pain, coming on occasionally at night, during the past five years; it was relieved by a drink of water. Constipation had been present for three or four years, and hemorrhoids for two years. The patient's habits were good. The onset occurred in November, 1911, one year before admission, with asthenia. The patient stopped work in April, 1912. Other symptoms were loss of weight, anorexia, constipation, and numbness of fingers. Three months before, vomiting spells occurred, with nausea but without pain. His physician said that in August, there was an acute attack with fever, jaundice, choluria, acholic stools, nausea and vomiting, very suggestive of cholangeitis. He had had reverses in business, and was depressed and introspective.

Physical Examination.—The patient was undernourished. There was bronze pigmentation of the skin, and pallor of the mucous membranes; the tongue was flabby and of a brownish color. There were some infected dental roots and a few palpable cervical lymph nodes. The heart and lungs were negative. The liver edge was palpable, two fingers breadths below the costal margin. Slight resistance was encountered in the gallbladder region. There was slight edema of the ankles; a few external hemorrhoids were noted.

The blood picture was that of a severe anemia (Chart 1). There was gastric anacidity. The stools were normal. The Wassermann test was negative. The Calmette reactions were negative.

The only untoward event in his otherwise favorable course was an acute febrile period of four or five hours' duration, with temperature of 102 F., chilly sensations, and nasal discharge. About a month after his discharge from the hospital, his physician, Dr. James A. Work, Jr., wrote that his hemoglobin was 94 per cent. (Gowers). The patient was then feeling well, and was at work. While in the hospital, his systolic blood pressure was about 100; his temperature rose occasionally to 99.5, but usually was not over 99, with a tachycardia of from 90 to 100. Weight increased in the hospital from 120 to 140 pounds.

Treatment.—This consisted of rest, full diet, dilute hydrochloric acid (twentieth normal) before and after meals; arsenic in the form of sodium cacodylate; neosalvarsan (one dose); and, for a time, liquor potassii arsenitis. Blaud's pills were given after meals. A solution of potassium chlorate was used as a mouth wash. The teeth and gums were put in good condition.

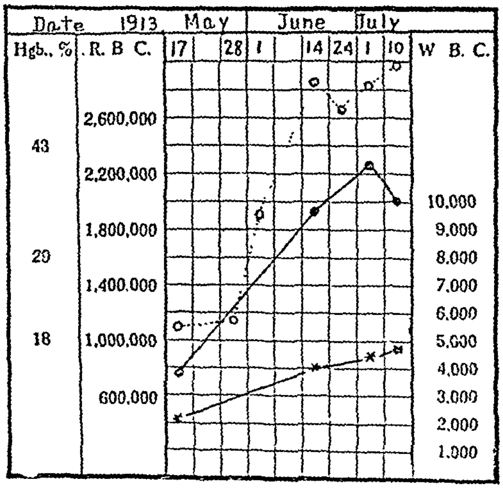

Chart 2.—The blood in Case 2.

This patient, who lives in Indiana, has returned from time to time for observation. He is well and carries on an active business. His hemoglobin has, at times, been as high as 107 per cent.

Case 2.—*History*.—W. C., business man, aged 38, admitted, May 17, 1913, discharged, July 10, 1913, for about eight years, had had a low fever at times accompanied by chilly sensations; the disease had been supposed to be malaria, though the symptoms were much like those manifested on admission. He had been troubled with bad teeth for many years. The present illness had grown worse for four months, with loss of weight, marked asthenia, fever, and tachycardia. On admission to the hospital, several teeth were found to be loose, with pus about their roots. The physical findings and blood picture were typical of pernicious anemia of severe grade. The red corpuscle count was below a million cells; hemoglobin 20 per cent. (Chart 2).

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[3] This brother, J. H. M., aged 53, came into the hospital the following spring, March 17. He had had bad teeth for eighteen years, typical symptoms of pernicious anemia for nine months, gastric anacidity, blood count of 1,000,000 red blood corpuscles, fever and tachycardia. His course was progressively downward and he died, April 30, in spite of salvarsan, of whole blood subcutaneously, and of a transfusion of 500 c.c. of defibrinated blood.

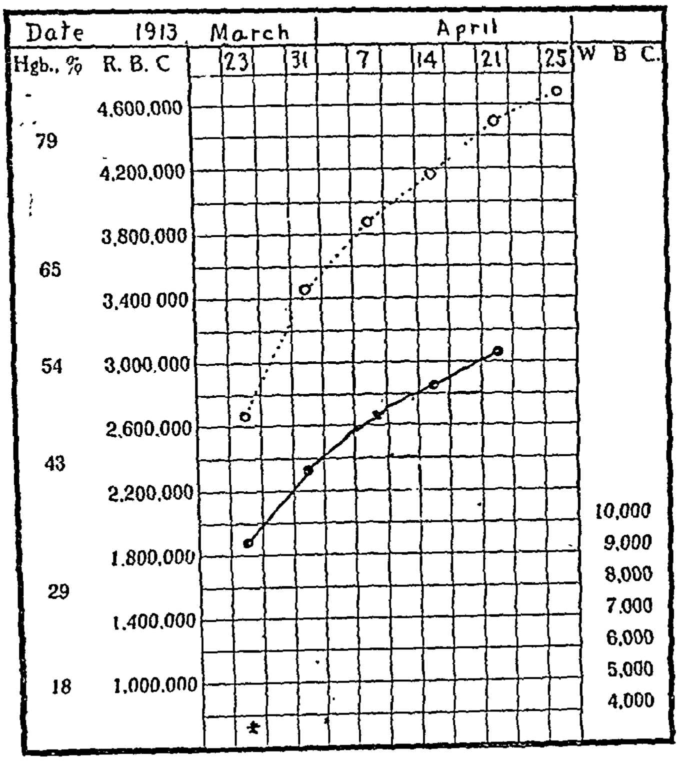

Chart 3.—The blood in Case 3.

Treatment.—This consisted of rest, food, hydrochloric acid, Blaud's pills, and arsenic in the form of sodium cacodylate; neosalvarsan, two doses; and for a time, liquor potassii arsenitis. The teeth and gums were put in good condition by dental specialists.

Note on Discharge.—The symptoms have all cleared up; the patient has gained 12 pounds in weight; the pallor is gone; the blood is rapidly improving.

Case 3.—*History.*—J. C. L., business man, aged 37, admitted, March 21, 1913, discharged, April 25, 1913, complained of a "general tired feeling," nervousness and sleeplessness. The family history was unimportant. The patient's general health had been good. He had had measles and mumps as a child, and gonorrhea, twenty years before admission, followed by stricture of the urethra, which was completely cured. He had a tendency to worry about business affairs, became very irritable at times, and suffered from insomnia. He had meals at irregular times, ate rapidly and, formerly, smoked excessively. The onset began about thirteen months before, following an attack of grip. He did not go to bed, but kept at work, with progressive increase in the asthenia, irritability, insomnia and anorexia.

Physical Examination.—The patient was a well-nourished, muscular man. His face showed marked pallor. The liver edge was palpable 1 cm. below the costal margin. The firm, round edge of the spleen was felt just beneath the costal margin. The blood examination disclosed a moderately severe anemia, with high color-index and leukopenia, as shown in Chart 3. There was gastric anacidity. The Wassermann test was negative. The diagnosis was pernicious anemia gastric anacidity.

once 10. his consisted of rest, full diet, hydrochloric weeks, a secon bonate and pancreatin, 3 drams of each, ch meal, and sodium cacodylate. ge, April 25, the spleen was not palpable. occasional rise of temperature to 99.6 F. There was no fever during the last three weeks. He gained only a few pounds in weight while in the hospital. Later, at a nursing home, he made a good gain in weight. On leaving there, he went to the country to live. His blood is now normal and he is taking up his work again in Alabama.

Case 4.—*History.*—A. E. H., man, aged 43, white, married, admitted, May 18, 1916, and discharged, July 30, 1916, complained of sensitiveness of the plantar surfaces of the feet, and of weakness. The family history was good. He has three children, living and well, and no children have died. The patient has worked hard at confining office work, but his health has been, in general, good. He has had the usual children's diseases. He had influenza four years ago, but has had no sore throat. He has had alveolar abscesses recently. His habits have been good. Patient said his illness began about nine months previously with numbness in hands and, later, in feet and knees. The numbness had disappeared, but he said the toes and the bottoms of his feet were very sensitive. There had been some loss of weight. Blood examined at home had disclosed marked anemia. Three small transfusions of whole blood had been given, each containing from 30 to 50 c.c.

Physical Examination.—The patient was fairly well nourished, though pale and with slightly pigmented skin. The scleras were slightly icteroid. The heart was negative except for a soft systolic murmur. The lungs, the spine and the abdomen were negative. There was definite hyperesthesia on the plantar surfaces of the feet. There were no other evidences of lesion of the nervous system.

The blood revealed the usual picture of a moderately severe pernicious anemia as seen in Chart 4. The Wassermann reaction was negative. The roentgenoscopic examination of the gastro-intestinal tract was negative. After an Ewald test meal nothing was recovered through the tube after thirty-five minutes. There was no fever and no tachycardia. The urine was of low specific gravity, and otherwise normal. Dental consultation and examination revealed periapical areas about three teeth, and these teeth were extracted and their sockets curetted. The diagnosis was pernicious anemia and oral sepsis.

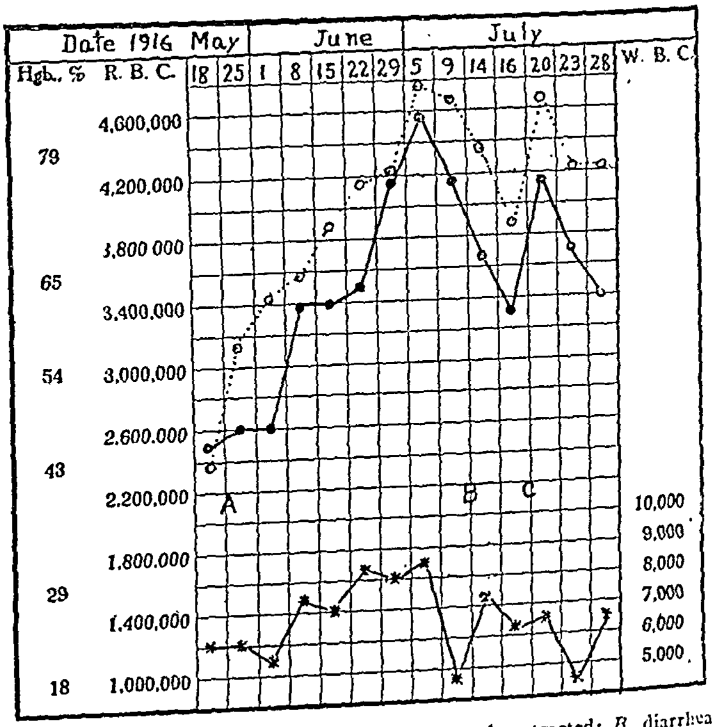

Chart 4.—The blood in Case 4: *A*, three teeth extracted; *B*, diarrhea and abdominal pain; *C*, diarrhea checked.

Our usual regimen for the treatment of pernicious anemia was begun. Improvement began at once, but, after eight weeks, was interrupted by an attack including diarrhea and abdominal pain. After a few days, however, the counts again started upward. Recent reports from his home in Texas state that the patient is very well.

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2. Asiatic (Tanjore grains; powdered black water, enough to make

Case 6.—*History*.—S. B. F., aged 73, business man, married, was admitted, April 27, 1917, and on examination pernicious anemia and peridental abscesses were revealed. The patient complained of weakness, loss of energy, pallor, dyspnea, and anorexia. He had had one attack of diarrhea. The family history was negative. The patient had had measles, mumps, chickenpox and malaria. He has had a great deal of trouble with his teeth (pain, abscesses). He had an attack of influenza three years ago with bronchitis. He has some frequency of urination, and is unable to empty his bladder. His habits are good. For three years, he had felt loss of his usual energy, and had had vague abdominal discomfort, constipation and anorexia. The weakness had increased steadily and, for one year, had been quite marked. The other symptoms noticed include dizziness, loss of weight, and dyspnea on exertion.

Physical Examination.—The patient showed moderate obesity; had a typical lemon-yellow color of skin and scleras; marked pallor and spade-like hands with abundant soft parts, almost like myxedema. There was severe oral sepsis and tachycardia. A slight pitting of ankles and a slight arterial hypertension were noted. The blood pressure was 150/80.

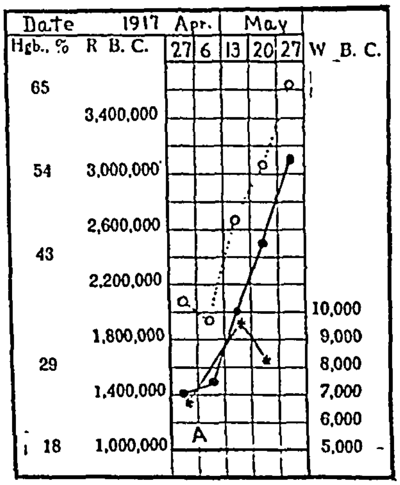

Chart 6.—The blood in Case 6: *A*, extraction of ten teeth, May 4, 1917.

Blood examination revealed a marked anemia as seen in Chart 6. Gastric analysis shows anachlorhydria; total acidity 7 acidity per cent. Stools were small, soft and light yellow, but contained no parasites, ova, or blood. The Wassermann reaction was negative. Dental consultation and examination revealed large periapical areas with pus-sacs about many of the teeth, some ten of which were accordingly extracted.

Roentgenographic examination of the stomach and the intestines disclosed a spastic pylorus and a duodenal cap rotated and flattened out, suggesting a lesion in the neighborhood of the gallbladder. The laryngologic examination was negative. The urologic examination revealed phimosis, chronic prostatitis, and seminal vesiculitis. Further cystoscopic examination will be made when the patient's strength permits. The urine is of normal amount. The specific gravity is 1.015, and there is a faint trace of albumin, hyaline and granular casts, and abnormal amounts of urobilin.

The patient was at first extremely asthenic, and dyspneic on the slightest exertion. These symptoms improved markedly along with improvement in the blood condition. The usual regimen was followed. The chart shows the beginning of an improvement that has continued steadily since. The patient returned to his home in Delaware.[4]

ABSTRACT OF DISCUSSION

Dr. H. A. Christian, Boston: Forced feeding is evidently important, but in our own experience often we have found it exceedingly difficult to carry out because so many patients have nausea or a distinct aversion to food. In overcoming that aversion to food we have sometimes found transfusion valuable. I would suggest transfusion as an appetizer in some of these cases of pernicious anemia. In regard to the treatment with hydrochloric acid, pancreatin and calcium carbonate, we have found great difficulty in getting our patients to take this treatment (on account of the bad taste, especially of pancreatin). We have carried it out as Dr. Barker has suggested, and some patients have taken it very well; other patients have refused. There may be something wrong with our pancreatin, or we lack that persuasive power that Dr. Barker has.

Clearing up foci of infection of course is important. The prolonged rest, with the patient going frequently out into the fresh air or spending the whole day in the open, adds a great deal to the results because the patients take their food so much better, and their general condition is greatly improved. Frankly, however, I do not think we have succeeded in accomplishing much in the attempt, possibly a poor attempt, to carry out the regimen that Dr. Barker has indicated. In some cases we have had good results and in others we have had no results at all.

I should like to emphasize the importance of gastric anacidity in these cases. The point is that sometimes the condition exists for several years before the development of the symptoms of anemia. I have seen a case in which it existed for five years and in one of our cases, which was studied very thoroughly, with a complete blood examination and nothing abnormal made out except gastric anacidity, the patient returned in two years with typical primary anemia. I should like to emphasize the presence of fever as a symptom. As we see it in the hospital, we find fever present with almost no exceptions; if the patient is sick enough to come to the hospital, he almost invariably has fever. These cases have been sent in as typhoid fever and tuberculosis because the general practitioner did not recognize the fever as a symptom of anemia. In these cases transfusion, when it increases the blood, relieves the fever.

Dr. N. E. Brill, New York: I know of no subject in the domain of the pathology of the blood which is surrounded by as much darkness as is the subject of anemia, whether primary or secondary. This is perhaps due to the fact that we as clinicians have not paid much attention to the biologic, physiologic and pathologic conditions associated with anemia. We speak of anemias in a general way as reduction in the number of the red cells of the blood. When we take into consideration the fact that the spleen is constantly destroying blood cells, that the life of a red blood cell, as estimated by Quincke is only thirty days, that therefore of all our blood we are losing one-thirtieth every day, it must strike us that there must be a nice balance between this daily loss and the new red cells formed to keep a constant of 5,000,000 red blood cells to each cubic millimeter of blood. What is the factor that regulates this wonderful balance? For over ten years I have been teaching my students that the regulating cause of this production resided in the red blood cell itself, particularly in its hemoglobin, and was particularly dependent on the oxygen-carrying capacity of the blood. When there is a diminution of oxygen in the blood, whether it be due to deficiency in the number of red cells or in the available oxygen, that deficiency of oxygen is the instigator or the hormone to the marrow for the production of new red cells. Clinically that theory is borne out by many factors. We know that in deficient aeration of the blood such as occurs in emphysema or in cardiac disease, the bone marrow responds to that diminution of oxygen by producing new cells, and polycythemia is a not uncommon accompaniment. Take carbon monoxid poisoning: there is no poison that will dissipate or force aside the oxygen from the hemoglobin as intensely and completely as will carbon monoxid gas, and in every case of this poisoning reported you will find that the bone marrow was distinctly red and that the circulating blood was full of nucleated cells, which means bone marrow activation. Take the blood of people living up on the mountain tops and you will find that the average number of red cells is 6,000,000 instead of 4,000,000 or 5,000,000, which is the number present at sea level, owing to the diminution of oxygen, the result of variation in barometric pressure. Take pernicious anemia, or even Minkowski's disease, in each of which the hemolysis which accompanies them results in the splitting up of the hemoglobin and, therefore, in the oxygen content, as a result of which bone marrow stimulation obtains. Haldane has shown that the blood in pernicious anemia contains the lowest amount of hemoglobin, hence the amount of bone marrow activation is most marked in that disease.

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[4] In the summer (1917) he wrote that he was well—better than he had been in years.

Dr. George R. Minot, Boston: Dr. George I. Lee and I have studied the anemias at the Massachusetts General Hospital for the past three years, and there is one point about the activity of the bone marrow which was not brought out, yet which seems to us important.

It has been pointed out that the skeined cells (reticulated cells) and polynuclears give us information about bone marrow activity. The blood platelets are formed from the giant cells of the bone marrow and are also important elements to observe when studying bone marrow activity. We feel that if we were given, in a case of pernicious anemia, but one of the three chief marrow elements to judge the activity of the marrow from, we would rather know the number of the platelets than any other single factor.

We have treated approximately 100 patients with pernicious anemia; about 40 of these patients received only fresh air, suitable diet and arsenic; about 40 more have received transfusions, and 19 (chiefly unselected cases) were splenectomized. Splenectomy should, however, be reserved for selected cases, and is to be looked on as only the best means of inducing a remission. It usually gives the most satisfactory results in young patients with large spleens and considerable hemolysis. About 85 per cent. of the splenectomized patients showed some definite improvement following the operation, and 45 per cent. showed marked rapid gains; 50 per cent. of the transfused patients showed definite improvement beyond a simple filling up with blood, and 18 per cent. showed marked rapid gains; while in a similar period of time but 35 to 40 per cent. of the nonsplenectomized and nontransfused patients showed any improvement at all, and 7 per cent. showed marked rapid gains. There was a greater degree of improvement in the transfused and splenectomized than in the other patients.

Dr. Frank Smithies, Chicago: I am glad that Dr. Barker emphasized the important causal relationship of bacteria to the severe anemias. I personally believe that in the majority of these cases of addisonian or "pernicious" anemia we have to deal with a peculiar type of bacterium of the hemolytic group. It is probable that the ailment represents end-results of long continued, intermittently active, low-grade sepsis.

In regard to the treatment, I believe in the early and frequently repeated transfusion of undoubted blood. I think that if we knew how to use transfusion, splenectomy would not be necessary in the majority of cases. Does transfusion do anything? Dr. Christian said that it is an appetizer; it certainly is, in the majority of cases. It will aid Dr. Barker in giving these large masses of pancreatin, which of course physiologically have no action within the alimentary tract. Transfusion will enable the patient to fight infection and its products, and probably stimulate blood formation. It will do in a week what Dr. Barker's rest treatment in bed for a month or more will do. This is an important service when one is treating anemic patients whose time and money are both limited. The individual who is energetically treated from the start has a fighting chance. I think that we ought not to go from this room and say, respecting our addisonian anemias, that the treatment is only "lots of fresh air, good food and sunshine, and Heaven help them." If we let the patient consider that he has a hopeless disease, then he will not do well; but if we get into the patient's mind that there is a cause for this disease and that we are treating that cause as far as possible, we are going to have a fighting group of patients with anemias. Many will get well and be useful citizens.

Dr. Edward Lindeman, New York: The most typical feature of pernicious anemia to me is its atypical and capricious course. One must be constantly guarded lest one attribute to any form of therapy that which rightly belongs to the natural course of the disease.

As to the value of the different measures of treatment as advocated in Dr. Barker's paper, I never give hydrochloric acid, cacodylate of soda or other medicinal remedies mentioned. I do not crowd the food, for the simple reason that after transfusions patients crowd the food without advising it. I do not advise rest in bed after transfusions. Patients are given blood transfusions in quantities from 1,200 c.c. to 2,300 c.c. These transfusions are given by the syringe cannula system and no reactions follow transfusions. Under no circumstances is sodium citrate or other anticoagulant used. I do not find it necessary to transfuse more than once in two months, one and two years, or even longer intervals, depending on the type of case.

When one sees a patient in a semiconscious state with dyspnea, generalized edema, persistent nausea and vomiting, rapid pulse and fever, and four hours after receiving 1,600 c.c. of blood, finds a disappearance of all nausea and vomiting, with the return of full consciousness, with absence, at the end of twenty-four hours, of all signs and symptoms enumerated, and the patient remains well for a period of two years, one cannot help but respect that form of therapy.

In regard to splenectomy, every patient I have had has returned with a blood crisis. What splenectomy has done for some is that it has prolonged the remissions of the disease and only carefully selected cases have proved favorable for this procedure.

In all cases of pernicious anemia coming under my observation in which the patients were in the first year of their disease, and who have remained where I could treat them at opportune times, there has been no death in the last two years. Treatment consisted almost entirely of blood transfusions in large amounts.

Dr. E. L. Tuohy, Duluth, Minn.: I wish to emphasize the value of Schneider's method of estimating pigment output in the duodenal contents. The original investigations of Eppinger and Hess were made on the stools. Splenectomy, as advised by Eppinger, was the outgrowth of this work. Whatever may prove ultimately to be the merits or demerits of this operation, it can be said that certainly splenectomy is not logical in those patients not showing pleiochromia in the duodenal contents. I have studied about thirty cases of severe anemia, using this method in addition to the usual methods of investigation. Interestingly, two cases of *Bothriocephalus latus*, with very severe anemia, did not show any excess of pigment in the duodenal contents. In many severe anemias where I live the patients have shown positive Wassermanns; all of these have shown the same sort of duodenal contents as are seen in the usual severe secondary anemia. All have improved under specific treatment. The true pathology of pernicious anemia still seems obscure. The spleen cannot be looked on as the only destructive agent. These severe syphilitic anemias point to the possibility of striking injury done the bone marrow by syphilitic toxin.

Dr. Alfonso Castelli, New York: In the treatment of secondary anemia, exercise, diet, rest, fresh air and transfusion, of course, give relief, but in my experience in the treatment of secondary anemia the best results have been accomplished by the intramuscular injection of arsenate of iron. Iron, we know, is the time honored drug in the treatment of anemia, and we can trace its use to those early, empiric times when it was obtained for medicinal purposes, from having a red hot piece of iron immersed in water so as to produce aqua ferrata or chalybeate. We also know that iron, which enters into the constitution of the human body, 2.1 gm. being present in the average 65 kg. body, makes hematoblasts become adult erythrocytes, thus entering into the formation of hemoglobin, which is the important functional element in the red cells and the most important *medium* in the *exchange of oxygen* (oxyhemoglobin) from the air to all the tissues.

Arsenic, the well known tonic and alterative, on the other side, seems directly to stimulate bone marrow and the other hematoplastic organs in their blood-cell producing function, and therefore in the combination of the two elements, iron and arsenic, we have an ideal product *with* which to treat anemia. Of course, we know that iron must not be given by mouth, because patients will get either diarrhea or constipation, and we know that the intestines *do not* absorb heavy metals like iron, to say nothing of its teeth-blackening property. Likewise, arsenic tends to show untoward effects—nausea, dyspepsia, gastralgia, etc.—when *administered* by mouth, while the administration *by* the transcutaneous route of the two elements in solution avoids all that trouble and gives, beside, a fair estimation of the *dose* of the compound which is deemed advisable to inject, according to age, size, etc., of the patient. We may start with 0.1 gm. of iron arsenate in 1 c.c. of solution, to be administered every day or every other day, children and undersized patients accordingly, and the dose may be increased up to 0.7 gm. After a number of injections of this arsenated iron the blood picture has become normal, not only in relation to the number of cells, but even to the index of hemoglobin, and the patient who was low spirited, pale, emaciated and underweight when he started the treatment, has regained his normal condition, is feeling well and looking rosy when he has taken the necessary series of intramuscular injections of iron arsenate. This holds good in cases of obscure anemias, as well as in those cases which accompany or follow such diseases as tuberculosis, syphilis, malaria, etc., and in the disorders of metabolism in general.

DR. ALFRED STENGEL, Philadelphia: Hemolysis alone cannot be the basis for our judgment as to methods of treatment. Hemolysis is one factor in true pernicious anemia, and only one. There is the question of marrow activity after hemolysis has been reached, to a certain extent. Observations have been made pointing to specific infection of the bone marrow in some cases. These observations have not been published, but are under way at present. The question of syphilitic anemia, I think, is a proper one. I recall a case of syphilitic anemia of a grade which we see in the most severe pernicious anemia; this patient recovered quickly under antispecific treatment. There are also infectious cases with speedy recovery after removal of the infection.

There are conditions closely resembling pernicious anemia that get well with either Dr. Barker's treatment or Dr. Smithies' treatment; but I am unable to give any positive opinion as to what plan of treatment is going to be effective. I think we are getting nearer to proper treatment in removing subsidiary causes or in coaxing back the bone marrow into its previous activity.

DR. L. F. BARKER, Baltimore: Two points have come out in this discussion: first, the great difficulty in differential diagnosis in some of the cases, and second, the clear advantage in therapy of the removal of foci of infection, and in some instances, of transfusion. As to aversion to food, I believe that we can often do much by urging patients to take food in spite of absence of appetite. Dr. Christian has observed that transfusion increases appetite. In many cases it is necessary to tell a patient that his appetite is not a sufficient guide and that he should eat what the nurse brings him, despite anorexia. An abundant, mixed, roborant diet should be given; the patients should be encouraged to take it and to bear any slight discomfort that follows its ingestion. I agree that pancreatin and calcium carbonate in the amounts mentioned are somewhat unpalatable. We have given them on the theory that, in the absence of hydrochloric acid and of proper secretin-production, some aid to intestinal digestion might be beneficial. Many of us will overlook foci of infection even when we think our search has been thorough.

This brings me to the question of fever. I think it may be due sometimes to the anemia itself, but I think we should first assume that it is due to some focus of infection that we have not yet discovered and we should continue the search for an overlooked focus. If, in a severe anemia, a focus of infection be found, say in the teeth, one might be inclined to say "wait," but I think we should go ahead, give an anesthetic, even to a man with a hemoglobin of 30 per cent., and perform the operation to get rid of the focus of infection. I have done this in several instances with gratifying results. What has been said about transfusion has interested me very much, and I certainly think that patients that do not respond to other methods of treatment should be transfused. I do not want to be understood as being pessimistic about the outlook in even very severe cases, because we now feel that at least many of these anemic patients can be speedily returned to health and to work, and to the enjoyment of life.

Suckers.—We believe that the person who coined the statement, "A sucker is born every minute," sold patent medicines. Cumberland (Md.) *Health Bulletin*.

WOUND INFECTION AMONG LATHE WORKERS

AN INVESTIGATION INTO SOME OF THE FACTORS CAUSING WOUND INFECTION IN INDUSTRIAL SURGERY AND METHODS OF OBVIATING THEM *

MARVIN D. SHIE, A.B.
CLEVELAND

While serving in the emergency hospital of a large manufacturing plant last summer, I was impressed by the great number of infections and cases of furunculosis with which we had to deal. On some men a pinprick, if left unattended, developed into a severe lymphangitis; a slight scratch in twelve hours into a linear mass of pus; a slight abrasion into a suppurating ulcer, and a laceration into a mass of necrotic tissue and pus. There were dozens of cases of multiple furunculosis, some patients developing as many as fifty boils at once on their arms and legs and faces. It is probable that ours was not the only manufacturing plant troubled with experience of this sort, since out of the total amount paid for deaths by the Industrial Commission of Ohio last year, 22 per cent. was for those resulting from infections, and of the total amount paid for disabilities and loss of time, 10 per cent. was for the same cause.

In our plant there are employed about 2,000 men, representatives of many nations—Americans, Canadians, Irish, English, Scotch, Welsh, Swedes, Russians, Poles, Germans, Austrians, Lithuanians, Hungarians, Italians, Armenians, Slavs, Bulgarians, Serbians, etc. Their standards of living vary as much as their nationalities, some of them living in places as crowded, filthy and unkempt as are found in our city slums, others in clean, tidy cottages with little gardens. In age, they vary from 16 to 60. Their general health is good, seeming not to be affected in the least by personal filth or cleanliness. The tenure of employment is exceedingly variable, some men working only a few hours, while others have been with the company for twenty years. The majority of laborers, however, are transient.

Situated on a hill, the plant gets its electric power and water from Cleveland. The plant includes a carpenter shop, old machine shop, new machine shop, structural shop, forge shop, bond room, packing room, pumping station, power house, yard where the structural work is assembled, hospital and offices. Each department has its own toilet rooms, wash rooms and shower baths.

All these departments were represented by patients who came to the hospital. From fifty to sixty patients were seen daily, and of these from 8 to 10 per cent. had furunculosis, and about 5 per cent. had wound infections of various sorts (these percentages are mutually inclusive). It was soon noted, however, that these cases all came from the two machine shops. When this was investigated further, it was discovered that of all the 1,200 or more men in the machine shops, none had multiple furunculosis save those who worked on lathes, and furthermore that 90 per cent. of the infections occurred in men working on lathes. The new machine shop is given over to the manufacture of

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* From the Laboratories of the Department of Hygiene and Bacteriology, Western Reserve University School of Medicine.

* Awarded $100 prize offered by the American Association of Industrial Physicians and Surgeons for the best paper on industrial medicine or surgery by any undergraduate medical student in America.

8-inch shells, and houses about 400 lathes. The old machine shop is given over to the manufacture of machinery of various kinds, and houses only about twenty or thirty lathes. The cases of infections and furunculosis in these two shops varied directly as the number of lathes in each. The men employed on the lathes were of all nationalities and ages, and of the same general health as the rest of the men.

The localization of all furunculosis and the fact that the great proportion of infections was among the lathe workers naturally made us suspect that some element of the lathe work was the causative factor. This was further emphasized by transferring some of the men. Several of those affected with furunculosis were transferred to different types of work in the same and in other departments. In a week the boils began to disappear, and before long the men were comparatively free from them. Likewise some men in other departments, free from furunculosis and infections, were shifted to lathe work. About 35 per cent. of these men developed furunculosis, and in nearly every case, slight wounds which ordinarily would have caused them very little trouble became exceedingly troublesome, requiring constant attention and care to prevent infection. This was considered sufficient proof that lathe work was causing the trouble. The next problem was to discover the troublesome factor.

There were two possibilities: oil and cutting mixture. The oil was suggested by some of the men, and not without reason. For it is a well known fact that employees in machine shops, factories, etc., in which the men come in contact with lubricating oils, which are used automatically again and again, are particularly liable to suffer from dermatitis and furunculosis, in the form of "oil pimples," on the parts of the body which are constantly in contact with the oil. Elsewhere in the shop, however, there were men working in oil who had oil pimples, but whose furunculosis was not nearly so severe, and who were not nearly so susceptible to wound infection as the lathe men.

Cutting mixture is a compound of animal fats, petroleum oils and, as a rule, acids, used to facilitate the action of the cutting tool of the lathe on the object in the lathe. As the work revolves in the lathe, the cutting mixture runs in a steady stream on it at the point of application of the cutting tool. It then runs down over the work and the lathe into drains beneath. These drains empty into a central reservoir, from which the mixture is pumped up into tanks near the roof. With the aid of gravity, the mixture flows from these tanks through the system of pipes to the lathes. Thus the mixture is used over and over until it becomes so dirty as almost to clog the pipes. This, at least, was the condition before our investigation. The men are accustomed to spit into the mixture in the drains beneath their machines, throw their tobacco into it, and otherwise contaminate it. As they work, they are constantly in contact with both the oil and the cutting mixture, with which their clothes are often saturated. Thus it seemed that either might be a fruitful source of infection.

Having determined the possible causative factors, we set about the investigation of each of them. Stained cover-glass preparations, made from the oil and the cutting mixture, showed the presence of cocci and bacilli—very few in the oil and very many in the cutting mixture. Then cultures from each were made on glycerin agar and blood serum, and incubated in an electric incubator at 37.5 C. (99.5 F.). No growth whatever was obtained in the cultures made from the oil, as the tubes were absolutely clean. On the other hand, the cultures made from the cutting mixture were covered with a cream-colored growth in about twelve hours, the glycerin agar having more growth than the blood serum. Smears made from these cultures showed an enormous number of staphylococci, some large diplococci, a few short chains of streptococci, and several strains of bacilli. This was repeated a number of times, and the same results were obtained each time. Plates made from these specimens contained a number of putrefactive colonies, mostly aerobic spore-bearers, and a large number of colonies of *Staphylococcus aureus*. Cultures made from the furuncles and the infected wounds showed the same kind of growth, and the smears showed the same kinds of organisms.

We next tried the effects of inoculation. A series of guinea-pigs was inoculated with suspensions of organisms from cultures made from furuncles and infected wounds, and a second series was inoculated with suspensions from cultures made from the cutting mixture. Three modes of inoculation were tried, namely, scarification, subcutaneous injection and intraperitoneal injection. Other pigs had similar inoculations of distilled water and some had none. These served as controls. The results are shown in the accompanying table.

Ten days later, when the pigs were all apparently normal again, I repeated the experiment, changing the pigs around, and I obtained practically the same results. After another intermission of ten days, I repeated the experiment again, and got practically the same results, though the reactions were less pronounced. Guinea-pigs were rather an unfortunate choice for these inoculations, for I discovered later that they are somewhat immune to staphylococcus infections, and staphylococci made up the greater majority of the suspensions. Considering this immunity, I feel that, since all of the inoculated pigs reacted, the virulence of the organisms was, perhaps, above the average.

These results demonstrated rather conclusively that the cutting mixture was the cause of many of our infections, and also that any harm done by the oil was probably not due to its bacterial content. There was still a possibility, however, that the oil was causing the furunculosis. But "oil pimples," though numerous, do not develop into the large boils, and even carbuncles, with which so many of our patients were affected. The oil might have a local effect, causing irritation and an inflammation which, instead of leading to an effusion of liquid, leads to an emigration of leukocytes, thus producing pustulation, a type of dermatitis venenata. Some drugs possess a specific chemotactic power on leukocytes and thus lead to a septic pus formation. Their injection (hypodermic or into serous cavities) leads to the collection of pus even when asepsis is perfect. Turpentine, croton oil, petroleum, mercury, silver nitrate, digitoxin, cadaverin and a few others are the principal examples. All boils and pimples investigated, however, contained staphylococci. It may be that the constant irritant action of the oil on the skin, following the hairs down into the hair follicles, and setting up an irritation there, caused localized points of lessened resistance which readily succumbed to the attacks of any staphylococci which might later gain access to them. It is not likely that the oil itself is so strongly irritant as to cause furunculosis unaided.

We must consider, then, as causative factors, both oil and cutting mixture, but especially the latter, since our investigations seem to place the greater blame on it.

On inquiry at the Department of Bacteriology of the Public Health Division of Cleveland, I found that specimens had been submitted for analysis from various plants having apparently the same difficulties we were having. Plates made from certain specimens of wash water and lard oil were found to contain a number of putrefactive colonies, mostly of the *Bacillus subtilis* type, together with a few molds. No pyogenic organisms were found. A specimen of alkali water was found to contain 210 colonies per gram, mostly of the *B. subtilis* type, but no pyogenic organisms. A specimen of oil before use contained several putrefactive colonies, but no pyogenic organisms. A specimen of oil after use contained numerous putrefactive colonies and a number of colonies of *Staphylococcus aureus*.

It will be noted that the last of these specimens presented the same bacteriologic findings as did our own cutting mixture. Our oil also showed the same morphologic forms, but the organisms in it did not grow, and so probably were dead.

The portals of entry by which the germs might gain access to the system were many—cuts, abrasions, puncture wounds. Small particles of flying steel from lathes cause innumerable small puncture wounds, each of them sufficiently large to form a portal of entry. We passed the electric magnet over many arms apparently free from steel, and the magnet came away covered with fine steel "hairs" and splinters pulled out of the arms, leaving almost microscopic puncture wounds. We made cultures from the arms of these men, and in less than ten hours the cultures were covered with bacterial growth. Cultures from the arms of twenty-five college students were made in the same way. The majority showed some slight bacterial growth, but nothing approaching that obtained from the arms of these working men. It could not be otherwise, for the arms of the latter were constantly wet with oil and cutting mixture.

EFFECTS OF INOCULATIONS

Method	Time After Inoculation				
	24 Hours	36 Hours	48 Hours	72 Hours	120 Hours
Control pigs	Lively as ever	Well	Well	Well	Well
Cutting mixture:					
Scarified pig	Lively, but seropurulent material along excoriations	More pronounced	Healing	Healing	Healed
Subcutaneous	Decidedly less lively.	Lay inert in corner of cage, under straw; roused with difficulty	Sick, almost comatose	Recovering	Almost well (well in 8 days)
Intraperitoneal	Decidedly less lively.	Inert in corner of cage; under straw; roused with difficulty	Almost comatose	Slightly better	Recovering (well in 7 days)
Wounds and furunculosis:					
Scarified	Very lively, but pus under scabs on excoriations	About same	Healing	Healed	Healed
Subcutaneous	Somewhat less lively.	Very quiet; not easily roused	Inert in corner of cage under straw; roused with difficulty	Slightly better; more easily roused	Much better; practically well
Intraperitoneal	Much less lively	Almost comatose	Slight movement; roused with difficulty	Better	Better (well in 6 days)

PROPHYLAXIS

We next faced the problem of prevention, the prophylaxis. In regard to the oil, about all we were able to do was to try to find men who were more or less immune to its irritant action. There seemed to be no way of counteracting the irritant action without injuring the properties of the oil. With the cutting mixture, however, it was an entirely different problem. This contained living organisms, the main cause of our trouble. The problem, then, was to find some cheap and effective means of killing the organisms without injuring the properties of the mixture. The possibilities were (1) sterilization by heat and (2) disinfection by chemicals.

Sterilization by heat can be carried out in a variety of ways. Probably the most effective method is by circulating steam through coils of pipe placed in the reservoirs and tanks containing the mixture. In this way the temperature attained by the mixture in the tanks is sufficient to kill the organisms present. A disadvantage of this method, however, is that as soon as the mixture leaves the pipe it is so distributed that it at once becomes recontaminated, and therefore reaches the workmen in almost as dangerous a condition as before treatment.

The other method, that of disinfection by chemicals, obviates this disadvantage, since the bactericide is constantly present and renders harmless any organism that might come in contact with it. The selection of the proper germicide for disinfection is really a problem for the makers of the mixture, and as soon as we made them acquainted with the facts, they were glad to cooperate with us and to do all in their power to render the mixture sterile. It may be well, however, to mention some of the difficulties in making a compound of this sort germ-proof. In the first place, it is impossible to use any inorganic or metallic germicide or disinfectant such as mercuric chlorid, copper sulphate, silver nitrate or ferrous sulphate, because of the action of the chemical on the metals with which it would have to come into contact. Oxidizing and reducing agents, hydrogen peroxid, potassium permanganate, sulphur dioxid, ozone, iodin, bromin, chlorin, etc., are ineffective because of their instability and the presence of organic matter in the cutting mixture. Likewise, disinfectants of the fatty series, such as chloroform, iodoform and alcohol are too unstable and also too costly. Some of them would also interfere with the action of the compound. As alkaloids are unsuitable, the only group left is the coal tar series, including phenols and cresols. This group is the least objectionable.

But many members of the coal tar series are also useless for our purpose, for the nature and quantity of the associated material is of great importance and must be taken into account.

Cutting mixture is a more or less oily solution containing considerable organic matter, especially after passing through the pipe and drainage system several times. Phenol (carbolic acid) acts antiseptically scarcely at all when in oily solutions—a fact due to their great solvent power for phenol, and to their ability to prevent its transfer to the bacterial protoplasms. Likewise in the presence of much organic matter, phenol, to be effective, must be used in concentration of about 5 per cent., which is too high a percentage to be desirable from its toxic standpoint. From the standpoint of effectiveness, the degree of dilution of the antiseptic is also important. A 5 per cent. solution of phenol is much more effective than either a 2 per cent. or a 25 per cent. solution. On the other hand, a solution must be strong enough in any given case to be effective. The various antiseptics vary greatly in their effective strength. The element of cost also enters here.

The toxic and corrosivé action of the agent and the ease with which it is absorbed are of importance in deciding its practical usefulness. Some men are susceptible to the odor of coal tar antiseptics such as phenol and cresol, and cannot work with solutions of which these are a part. This is one of the difficulties we encountered. Then, too, the cost of the disinfectant is an important factor, especially in these modern days when manufacturers watch closely every element entering into the cost of production, in order to cut down to the smallest margin the producing cost of the manufactured article.

We have shown that the coal tar disinfectants are practically the only ones available for our purpose. Of these the cresols are of the most importance. They form the major part of crude phenol, and contain the methyl group. This group diminishes its toxicity and increases its antiseptic power. The cresols are about three times as powerful as phenol in disinfecting value. A strength of from 1 to 1.5 per cent. is effective, and is only about one fourth as toxic as phenol. Their cost is also much less than that of phenol. The one disadvantage of cresols is their very slight solubility in water. This insolubility can be readily overcome, however by emulsifying agents. A cresol, then, would seem to be the most practical disinfecting agent for our purposes.

Two methods of sterilization, then, are available: by heat and by chemical disinfection. Both have been tried and found more or less effective. A large foundry about a mile from the plant of which I have been speaking had the same trouble. Here the heat method was used and it was found that the infections and furunculosis were considerably reduced, though not entirely stopped. The chemical method was tried in our plant. Phenol was found to have the disadvantages enumerated in the foregoing. It kept organisms from growing in the mixture only about one and a half days. Next a mixture of phenol and wood alcohol was added to the cutting mixture sufficient in amount to make a 5 per cent. solution when diluted with water. This was found more efficient than phenol alone. Solutions and preparations of cresol were then tried, and it was found that a smaller percentage kept the solution free from living organisms for a much longer time than did phenol, namely, for six days. Another dose had to be added then or else new cutting mixture had to be used to keep the mixture sterile, partly because additions to the number of bacteria in the mixture were constantly being made. This served to reduce markedly the infections and furunculosis, but some of the men could not work with it because of susceptibility to the odor. This is a small matter, however, which may be readily overcome.

It is quite likely that further modifications may be made which will reduce the number of cases still more. For the past three months, the cases of infection have been less than 0.5 per cent., and no complaints are heard from the men regarding either oil or cutting mixture. Whenever it seems probable that living pyogenic organisms are present in the oil, a germicide also might be added to it. We did not try a combination of heat and disinfection, for there was no steam in the shops, all the power being electric. But when steam is available, I believe that a combination of both methods would prove effective, and would greatly reduce the cases of furunculosis and infections, with which the emergency hospitals of many of our large manufacturing plants have to deal. In places where the men are sufficiently intelligent, a program of education in sanitation should be instituted so that the oil and cutting mixture would not readily become contaminated.

SUMMARY AND CONCLUSIONS

1. In a large manufacturing plant the vast majority of cases of wound infections and furunculosis were found to be localized among lathe workers in the machine shops.

2. The peculiar features of lathe work are the use of cutting mixture and oil, and the manner in which these circulate and are used repeatedly, thus making them extremely liable to contamination. This contamination rendered them open to suspicion as factors in the causation of the wound infection and furunculosis.

3. These suspicions were borne out by bacteriologic investigation and animal inoculation, which showed the causative factor to be pyogenic organisms which were present in vast numbers in the cutting mixture and less numerous in the oil. Marked results were obtained.

4. Abundant portals of entry for these organisms were found on the arms of workingmen in innumerable small cuts and punctures made by flying chips of steel from the lathes.

5. The methods of prophylaxis possible are: (*a*) by heat; (*b*) by chemical disinfection, and (*c*) by a combination of the two. Various chemical disinfectants were tried, and the cresol group was found to be the most effective and the least expensive.

6. By use of chemical disinfection (cresols), wound infections have been reduced from 5 per cent. to less than 0.5 per cent. in the plant under consideration, and furunculosis has almost disappeared.

1356 East One Hundred and Twenty-Fifth Street.

THE FRACTIONAL TEST MEAL

A STUDY OF 377 FRACTIONAL TEST MEALS, OF WHICH 139 ARE IN PROVED PATHOLOGIC CONDITIONS

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During the past two years there have been 377 fractional test meals given in the Medical Clinic of Wesley Memorial Hospital, under the supervision of Dr. Charles A. Elliott. Thirty of these test meals, as previously reported,[1] were tried on normal individuals, nurses and medical students, eighty-nine on patients in whom the diagnosis has been proved either at operation or at necropsy, forty-five on patients in whom the diagnosis was clinically certain but not proved, and 213 on patients in whom the diagnosis was not absolutely certain and could not be proved.

The present report deals with a total of 139 cases, in sixty-five of which the diagnosis was proved at necropsy or operation and in seventy-four of which there could be no doubt as to the actual condition present. These cases are divided into six groups: (1) diseases of the gallbladder, thirty-eight cases; (2) gastric ulcer, ten cases; (3) duodenal ulcer, twenty-six cases; (4) gastric carcinoma, eight cases; (5) pernicious anemia, eleven cases; (6) miscellaneous, forty-six cases.

The technic uniformly followed was that previously reported (Talbot) from this clinic. In those unusual cases in which the patient found it difficult to swallow the tube, a specially constructed bucket and a tube fitted with a wire obturator, as devised by Dr. Allen B. Kanavel,[2] were employed.

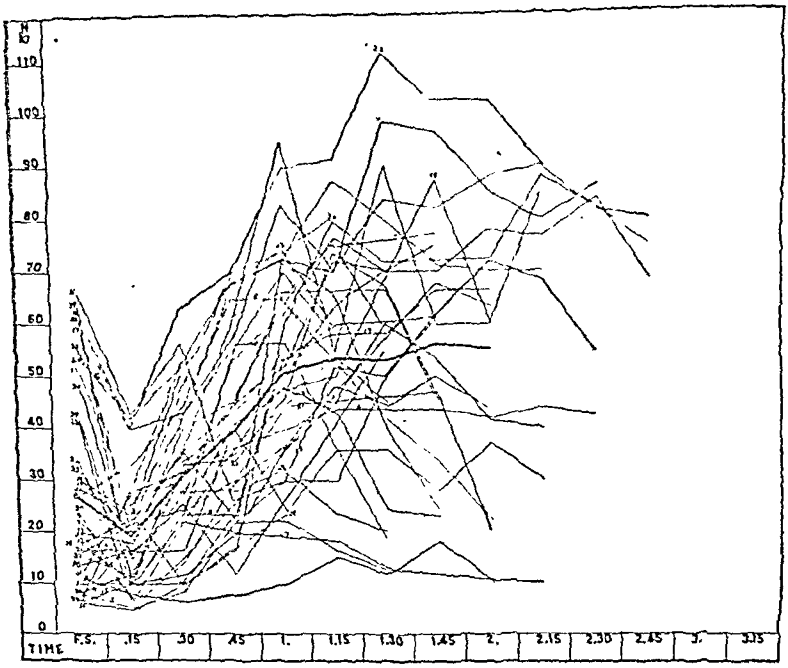

Chart 1.—The total acid curves in thirty-eight gallbladder cases (with operation in thirty-four). Note the low acidity of the fasting content (*F. S.*), the prompt response, the fairly constant time of maximum acidity, and the early emptying time at or near the high point. The gastric cycle is incomplete. In this and the following charts the heavy line represents the mean acid curve and terminates at the mean emptying time.

Special attention was given to the emptying time, first of food and then of secretion, for the two periods do not always coincide. The emptying time was considered of special importance and was well demonstrated by means of the fractional test meal.

DISEASES OF THE GALLBLADDER

This group consists of thirty-eight cases. In thirty-four, the diagnosis was proved at operation, and in four, the diagnosis was conclusive.

Fasting Content.—The amount of gastric content obtained from the fasting stomach varied from 2 to 255 c.c. The latter amount is exceptional, as in only two other cases did the amount exceed 60 c.c. The average was 27 c.c., exclusive of the one exceptional case. Free acid was absent in nineteen cases; below 20 in nine, between 20 and 40 in seven, over 40 in four, with a maximum of 54, the average being 14. The total amount of acid ranged from a minimum of 6 to a maximum of 66, with an average of 29. The highest reading for total acid, in cases in which free acid was absent, was 22. Lactic acid was uniformly absent in twenty-six cases. Gastric mucus was present in excessive amounts in seventeen cases. A benzidin test for blood was positive in three out of thirty-five cases. The microscopic findings were not interesting except in one case in which many pus cells were found in the fasting stomach content. The stomach content for this case gave a positive Gmelin test, and the case proved to be one of cholecystitis, with distention of the gallbladder.

Fractional Meal.—In the acid curve, the beginning of response to the test meal varied in onset from a few minutes to forty-five. In eleven cases it occurred less than fifteen minutes after the test meal, in nineteen cases, between fifteen and thirty minutes after the test meal, and in five it was delayed beyond the thirty minute period. In four cases there was no response. The response, whether prompt or delayed in onset, was gradual in development. The maximum amount of free acid varied from 0 to 80, with an average of 41. For the total amount of acid, the maximum varied from 14, in a case without free acid, to 112, with an average of 60. In point of time, the amount of free acid was highest at from thirty minutes to three hours, averaging one hour and twenty-eight minutes. The high point of total acidity occurred at from thirty minutes to two and one-half hours after the test meal, averaging one hour and twenty-two minutes. For both free and total acid content, the time of the high point was constant, regardless of the promptness of response. This point is illustrated in the accompanying tabulation.

CONSTANCY OF HIGH POINT OF ACIDITY

Cases	Response	Average free HCl	Average total HCl
11	0 to 15 minutes	1 hr. 35 min.	1 hr. 24 min.
19	15 to 30 minutes	1 hr. 40 min.	1 hr. 35 min.
5	30 minutes +	1 hr. 42 min.	1 hr. 36 min.

The type of response is fairly constant in most gallbladder cases. The acid values rise to the high point, at which the stomach empties, the gastric cycle not being completed in twenty-seven of thirty cases. Bile was present in four cases occurring after fairly high acid values were reached. It was accompanied by a decided drop in acidity.

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[1] Talbot, E. S.: The Examination of Normal Gastric Secretion by the Fractional Method, The Journal A. M. A., June 10, 1916, p. 1849.

[2] Kanavel, A. B.: Surg., Gynec. and Obst., October, 1916, p. 483.

Pain occurred during the test meal in only one case, was moderate in degree, independent of acid readings, and relieved at the emptying time. The emptying time in the majority, that is to say, twenty-two cases, was between one and one-half and two hours after eating. Only twelve cases continued beyond the two-hour period, and all were empty at the end of two hours and forty-five minutes.

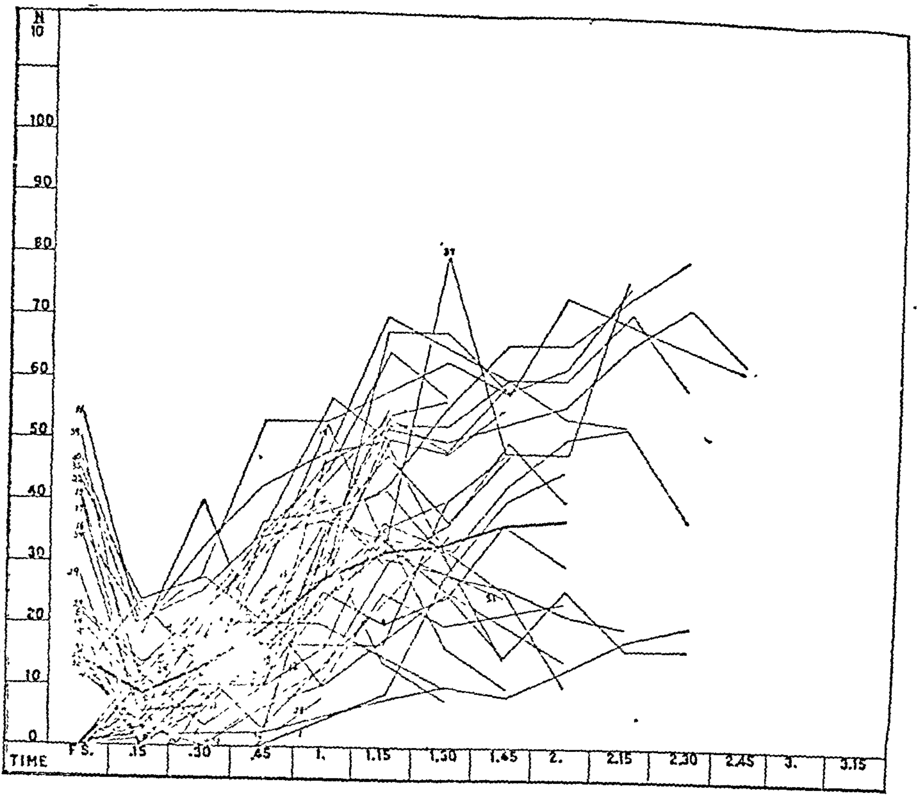

Chart 2.—The free acid curves in thirty-four gallbladder cases (four anacid curves not shown). Note the tendency to empty early at the high point.

Summary.—The characteristic features of the fractional test meal in gallbladder cases are: (1) fairly constant time for maximum acidity; (2) the emptying of the stomach at or near the maximum acidity; (3) early emptying time, and (4) incompleteness of the gastric cycle, interrupted by the emptying process at or near the maximum acidity.

DUODENAL ULCER

In this group, consisting of twenty-six cases, there are fifteen confirmed by operation and eleven in which the clinical diagnosis was certain.

Fasting Content.—From the fasting stomach the amount obtained varied from 5 to 175 c.c., with an average of 50. Eleven cases had less than 30 and eighteen less than 50 c.c., while eight had over 50 and only one over 100 c.c. The free acid value ranged from 0 to 80, with an average of 26. The total acidity varied from 6 to 100, with an average of 43. Five showed a total acidity above 80. Lactic acid was absent in all. Gastric mucus was excessive in seven. Microscopically, food remnants were found in only one, in which the fasting content was 131 c.c., free acidity 70 and total acidity 86. In one, red blood cells were observed with many puss cells, motile bacilli and *Trichomonas intestinalis.*

Fractional Meal.—There was no case of anacidity in this group. In nearly all cases with high acid fasting content, there was a sharp drop in the curve after the test meal was taken. The response to the food stimulus began in seven cases before the fifteen minute period, in eighteen cases before the thirty minute period, and in only one case later than thirty minutes. The response was gradual in development in twenty cases and abrupt in six cases, three of which showed a high acidity in the fasting content. The maximum acidity was reached in from forty-five minutes to three hours after the test meal, with an average time of one hour and thirty-six minutes. Acid values ranged from 24 to 110, averaging 66. The high points of total acidity were 44 to 124, with an average of 85, occurring in from one to three hours after the test meal, the average period being one hour and thirty-six minutes.

While the acme of the curve showed a distinctly high point in nearly all the cases, this level was sustained as a plateau in only five cases. In one there was a drop in the free acid to 0, one hour and fifteen minutes after eating. This was followed by a rise to 42 after two hours and thirty minutes, at which time the stomach emptied itself. In another there were two drops to the 0 line, each accompanied by the presence of bile and followed by a rise, giving the line a triple apex.

In six cases the Gmelin test for bile was positive. Its first appearance was usually accompanied by an abrupt fall in acidity. In one case it was a terminal finding. In three cases it was detected at one point during the test but disappeared, followed by a distinct rise in acidity.

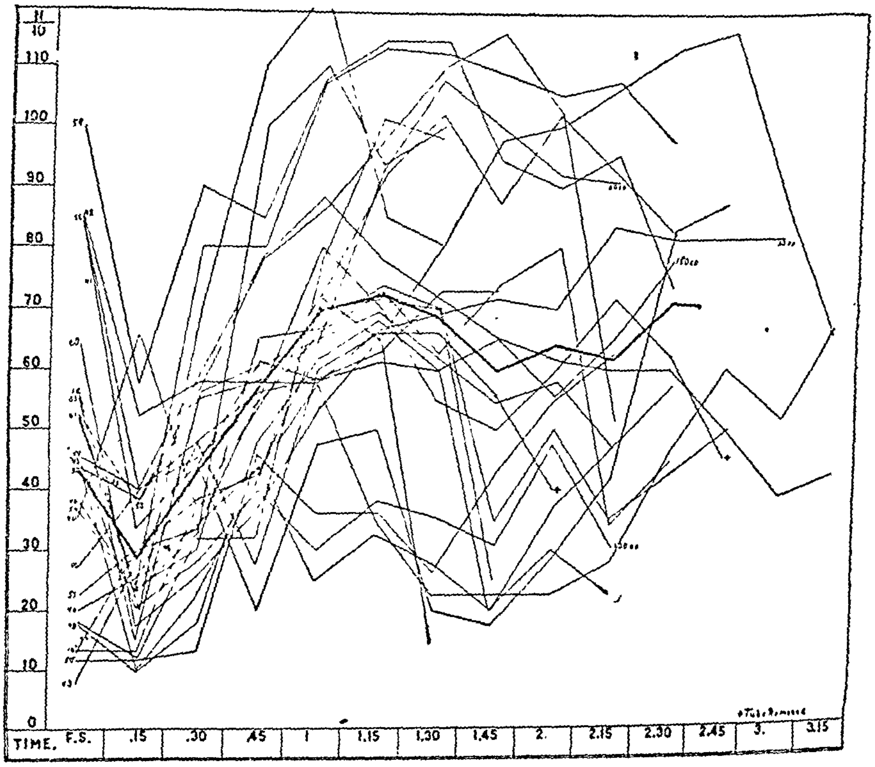

Chart 3.—The total acid curves in twenty-six duodenal ulcer cases (with operation in fifteen). Note the extremes of acidity of fasting content, the prompt secretory response to food stimulus, the high acidity, and the delayed emptying time.

In one case, bile was constantly found from the end of the thirty minute period to the time of emptying, two and one-half hours after eating. In another case, it appeared at the end of one hour after eating, and was constantly present until the stomach emptied at the end of two and one-half hours.

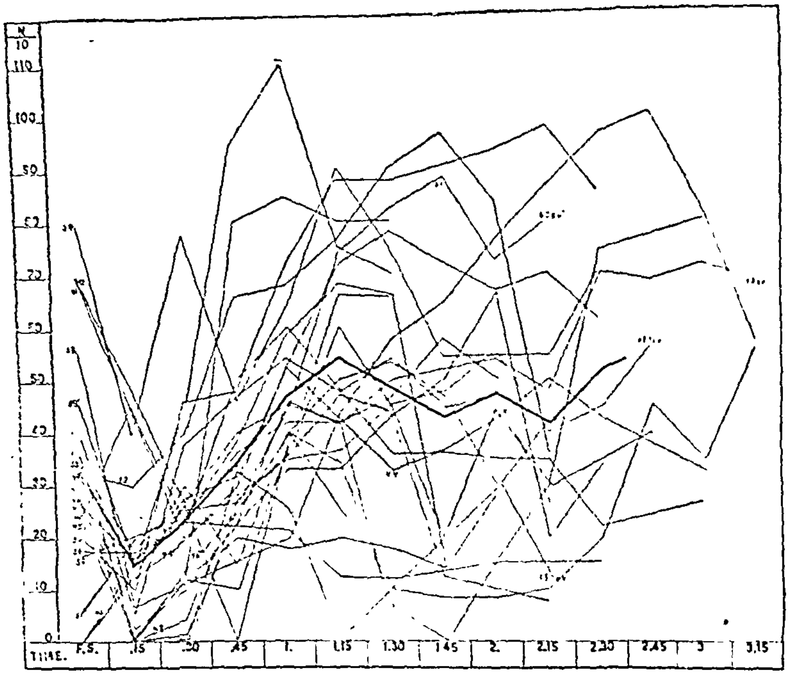

Chart 4.—The free acid curves in twenty-six duodenal ulcer cases (with operation in fifteen). Note the prompt secretory response, the high free acidity, and the delayed emptying time. There are no anacid cases in this group.

In one case, the benzidin test for blood was positive at the apex of the curve. Its appearance was followed by an abrupt fall in the acidity. In this case a chronic ulcer surrounded by many adhesions was found just outside the pylorus.

In eight cases, complaint was made of pain, which, in six of these cases, was described as burning in character and occurred at or just preceding the high acid point, which varied from 54 to 110 free acid. Pain continued until the acidity again fell to a figure corresponding to that at onset. In two cases, the pain was colicky or peristaltic in type, of short duration and with a lower acidity, that is to say, with a free acid content of from 20 to 34.

In this group the type of curve varies greatly, especially in the latter phase, which is most affected by disturbed motility and emptying power. Eighteen cases revealed a normal diverging rise in free and total acid curves, an acute or sustained apex, and a converging decline in acid values throughout the period extending to the emptying time or the discontinuance of the test. In seven cases the decline was abrupt, while in the others it was gradual, varying in length of time, and in some remittent. In six cases the acid values were so sustained and the emptying time so delayed, if, indeed, it came at all, that, in view of the high acid finding in the fasting content, one was justified in classing them as cases of continued secretion. In six cases there was no declining phase, in four cases the stomach emptied at a delayed high point, and in two, a large amount of the content was aspirated at a much delayed point when the test was discontinued.

The emptying time varied from one and three-fourths to three and one-half hours. Food particles disappeared from fifteen minutes to two hours and thirty minutes before the emptying time.

Summary.—The characteristics of this group are: (1) lack of anacid cases; (2) larger amount of fasting content; (3) high acidity, the highest values being found in this group; (4) delayed emptying time, with continued secretion in six cases, and (5) frequency of pain, which occurred in eight out of twenty-six cases.

GASTRIC ULCER

This group consists of ten cases, eight proved by operation and two in which the clinical diagnosis was certain.

Fasting Content.—The amount varied from 10 to 200 c.c., with an average of 65. The amount of free acid ranged from 0 in two cases to 84. In five cases it was more than 50, the average being 35. The total amount of acid ranged from 6 to 97, in five being more than 50, and the average being 51.

The contents were colorless with one exception, which was green and which gave a positive bile test with an excess of mucus and no blood, the ulcer being at the lesser curvature. Mucus was excessive in two cases. Blood was found in none, and bile was present in two.

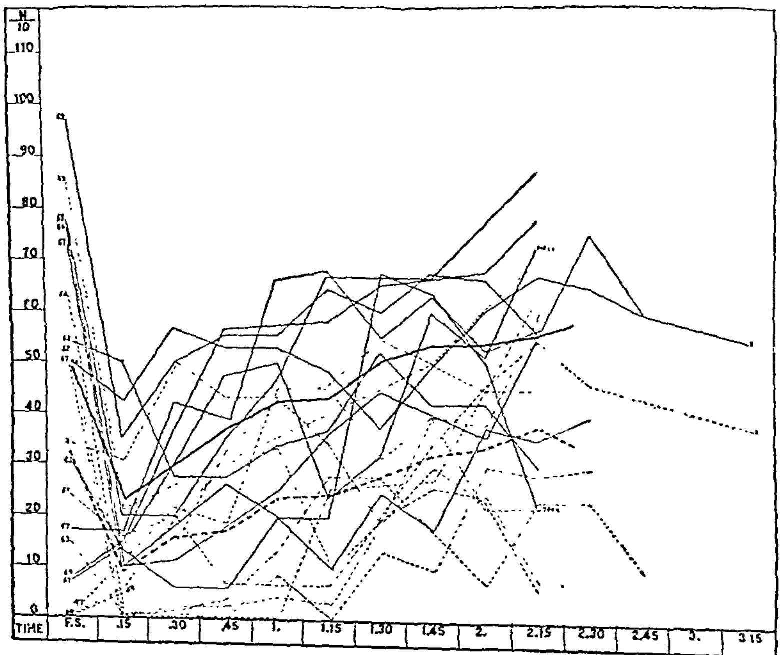

Chart 5.—The fractional test meal curves in ten gastric ulcer cases (with operation in eight). Total acid is indicated by the continuous lines, free acid by the interrupted lines. Note the high acid values of the fasting stomach content as compared with that obtained in the curve, the delayed and weak secretory response, the moderate height of curves, and the fairly uniform emptying time (seven cases at two and one-fourth hours).

Fractional Meal.—Of four cases which revealed high acid findings in the fasting content, the test meal was followed by an abrupt fall in the free acidity to 0 in three, and from 84 to 22 in the fourth. In two other cases the fall was gradual and less in degree. In two cases showing anacid fasting contents, the response was prompt in onset and gradual in development. In two cases the response began between the fifteen and thirty minute periods, in one it was delayed until the end of one hour, and in one there was no perceptible response until the end of one hour and fifteen minutes.

The maximum free acidity was reached at the end of a period varying from one and three-fourths to two and one-half hours, with values varying from 28 to 70, the average time being two hours with 49 acidity. The total acid high point was reached at from one and one-half to three hours, with an average of two and one-fourth hours. The acidity ranged from 40 to 88, the average being 65.

Bile was present in three cases. In one case with an ulcer at the lesser curvature with adhesions, it was present throughout the test, including the fasting content. In another case, bile was present at the end of fifteen minutes after an abrupt drop in acidity from a high fasting point of 62 free and 74 total. In a third case, it was present at the end of the one and one-fourth hour period, accompanied by a prompt fall in acidity.

Blood was demonstrated in only two cases. The pain, which was described as burning, was present in only one case, which showed the moderate acidity of 54 free and 64 total.

Summary.—The characteristic features of the fractional test meal in gastric ulcer are: 1. The amount of the fasting content is comparatively large. 2. The response is weakened and delayed. 3. A high point of only moderate acidity is attained. 4. Free blood and pain during the test are unusual. 5. The emptying time is fairly uniform at two and one-fourth hours, occurring in seven of ten cases.

GASTRIC CANCER

This group consists of eight cases all confirmed by operation or postmortem. The fasting content varied from 10 to 238 c.c., according to the site of the tumor, the largest amount being associated with obstruction at the pylorus. The cases fall into two groups, first, a group of five anacid cases in which there was no response to the test meal, and second, a group of three cases in which there was a response and free acid was present.

Of the five anacid cases the fasting content showed a total acidity of less than 8 except in one case in which the total acidity was 60, on account of the presence of a large amount of lactic acid. There was little or no response. The curve was uniformly flat. The emptying time was early except when associated with pyloric obstruction.

In the three cases in which free acid was present, the acidity was fairly high on the fasting content. In two cases there was a rather prompt response, and the free acid values were fairly high in all. In one case, the high point was reached in thirty minutes, and in the others, at the end of two hours. In one case there was a continued secretion. In all three cases, with free acid present, the pylorus was not involved, the tumors being prepyloric, on the lesser curvature, and cardiac, respectively. The free acidity reached 40, 56 and 74, respectively, the total acid and free acid curves being parallel to each other.

The emptying time was two hours or less in five cases and much delayed in three. Blood was present in five of the eight cases.

Summary.—1. In gastric cancer there are two types of curve, anacid and hyperacid. 2. In the anacid cases, the stomach empties early with one exception, which is associated with an edematous pylorus. 3. There is a continued secretion in two cases in which there is free acid. 4. In all three hyperacid cases, the site of the cancer was at the cardia or lesser curvature, the pylorus being free.

PERNICIOUS ANEMIA

This group consists of eleven cases, in all of which the diagnosis of primary pernicious anemia was clinically conclusive. The fasting content was small in amount, averaging 14 c.c. Free acid was uniformly absent. There was no gastric response to the test meal. In all cases, the benzidin test for blood was negative. The stomach emptied early and the food remained undigested throughout the test in all cases. In only one case was food present at the two hour period, six being empty at the end of one hour.

Three cases of severe secondary anemia resembled primary pernicious anemia, in all of which the etiology was known to be syphilis and chronic hemolytic infection. In two of these cases, the results of the fractional test meal differed markedly from those obtained in the cases of true pernicious anemia, in that the response to the test meal was marked, though somewhat delayed. In other words, free acid values of 35, 40 and 65, respectively, were obtained. In all cases, the response began thirty minutes after the test meal, and the high point was reached at the end of one and one-fourth hours.

Summary.—In pernicious anemia the following conditions were observed: (1) a small amount of fasting stomach content; (2) complete anacidity; (3) absence of blood; (4) unchanged food; (5) early emptying time, and (6) the presence of free acid in severe secondary anemias of known etiology simulating true pernicious anemia.

INFECTIONS

There is a small group of anacid cases of which mention should be made. These embrace chronic infections, such as arthritis, myositis, neuritis, chronic endocarditis, acne and boils. They occurred in patients who complained of no gastro-intestinal symptoms and in whom no acid was found during the fractional test meal. In a case of acne, the eruption apparently cleared up after the systematic administration of hydrochloric acid. Of two patients with hyperacidity occurring in duodenal ulcer, and given ulcer treatment during which the acid was continuously neutralized by the administration of large doses of sodium bicarbonate and magnesium oxid, one developed appendicitis, and the other, multiple acute arthritis. These facts suggest the protective nature of the hydrochloric acid in preventing infective agents from gaining access to the gastro-intestinal tract, or possibly to the general circulation, and would seem to warrant the making of a fractional test in all cases of chronic focal infections of unknown etiology. They also suggest the possible danger of general infection in neutralizing the acid in hyperacid cases.

Two important features of this group of anacid cases are the frequency of gastric anacidity in cases of chronic colitis without gastric complaint, and the value of hydrochloric acid therapy in pernicious anemia. The latter feature, which has been frequently observed in this clinic, also suggests the importance of the defensive rôle of hydrochloric acid as an antiseptic agent in the gastric secretion.

CONCLUSIONS

1. The fractional test meal satisfies the clinician as to the amount and character of the fasting stomach content, the gastric response, the acidity, the amount and character of secretion, the degree of gastric digestion, the presence of blood, the amount of bile, and the pain at any specific point in the gastric cycle, which is of considerable diagnostic value.

2. Certain fairly constant characteristics of the curve are noted in various diseases. In gallbladder disease the secretory response is prompt with high acidity, and the emptying time occurs at or near the high point. In duodenal ulcer there is a prompt gastric response, high acidity and delayed emptying time. In gastric ulcer, not affecting the pylorus, there is a weak and delayed response, moderate acidity and early emptying time. Gastric carcinoma presents two types of curve, the first showing the presence of acid and a delayed emptying time, and the second showing the absence of acid and an early emptying time. Pernicious anemia shows an anacid curve and an early emptying time, while severe secondary anemia shows a definite secretory response and a delayed emptying time. Chronic focal infections may show anacid curves suggesting the gastro-intestinal tract as a possible atrium of infection.

30 North Michigan Avenue.

PROLAPSE OF THE FEMALE URETHRA *

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While a slight amount of eversion of the female urethra is not uncommon, a pronounced bulging or prolapse of the mucous and submucous tissues is fortunately rare. The condition is found with greatest frequency in children, namely, in 60 per cent. of reported cases, while in patients aged from 15 to 40, only 12 per cent. are noted. Again, the percentage rises to 28 per cent. in women affected who are over 40 years of age. The youngest patient mentioned was an infant 5 days old, and the oldest was a woman of 92 years. Debilitated children and old people are those most often affected.

Portions of the mucous membrane removed have been carefully studied by various observers, and in some instances the tissues were found normal, while other specimens examined showed evidences of vascular and inflammatory changes. A number of investigators reported angiomatous nodules with vascular and connective tissue changes. The epithelium had disappeared from some of the projecting angiomatous nodules, which may account for the bleeding which so frequently accompanies this condition. Fibromyomatous changes have also been found with hypertrophied submucous glands.

While these pathologic conditions are of interest, they represent end-results, as they were made from tissues removed when the prolapse was complete, and throw no light on the etiology. The condition of the mucous and submucous structures in the early stages of the prolapse, we have no way of determining.

The large number and variety of theories as to the etiology of prolapse of the urethra is ample evidence that the cause is not definitely known. Among the predisposing causes that have been mentioned are: cough, constipation, straining at stool, trauma, cystitis, vesical tenesmus, stone in the bladder, parturition, angioma and general debility.

Dr. Thomas Addis Emmet, that master of plastic surgery, who gave careful thought to this condition, believed that during parturition, the head of the child pressed forward the loose tissues about the neck of the bladder, and also lacerated the periurethral structures, so that prolapse of the urethra followed. This theory is untenable, as we know that the majority of cases occur in children, and many cases are reported as having occurred in women who have never borne children.

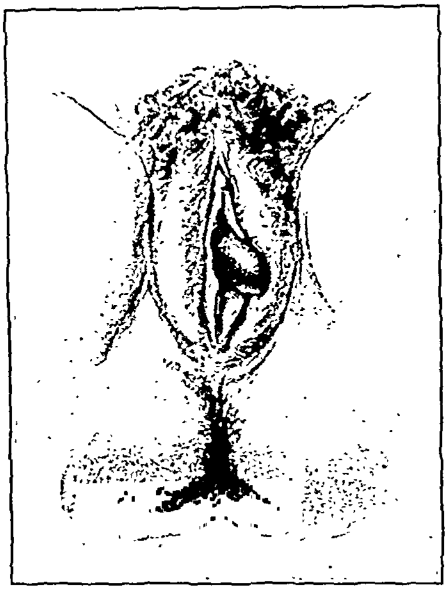

Fig. 1.—Prolapse of the urethra.

I believe that the cause is neuromuscular; that the nervous mechanism that controls the detrusor urinae muscle loses its normal balance and exerts too great a force on the normally loosely attached mucous membrane of the urethra, producing extrusion of this membrane; consequently the constrictor muscle of the urethra becomes partially paralyzed and cannot regain its tone, until the membrane is replaced and held there by the shortening of the sphincter muscles, or by the employment of some other operative procedure.

The symptoms found vary with each case. There may be no discomfort experienced by the patient, and attention is called to the condition solely by the presence of a slight, bloody discharge. Other patients complain of sudden, severe and continuous pain, with vesical tenesmus and frequent micturition. A protrusion can be seen and felt at the site of the meatus urinarius. Ulceration and even gangrene with sloughing of the protruding membrane has occurred.

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

Fractional Meal.—Of four cases which revealed high acid findings in the fasting content, the test meal was followed by an abrupt fall in the free acidity to 0 in three, and from 84 to 22 in the fourth. In two other cases the fall was gradual and less in degree. In two cases showing anacid fasting contents, the response was prompt in onset and gradual in development. In two cases the response began between the fifteen and thirty minute periods, in one it was delayed until the end of one hour, and in one there was no perceptible response until the end of one hour and fifteen minutes.

The maximum free acidity was reached at the end of a period varying from one and three-fourths to two and one-half hours, with values varying from 28 to 70, the average time being two hours with 49 acidity. The total acid high point was reached at from one and one-half to three hours, with an average of two and one-fourth hours. The acidity ranged from 40 to 88, the average being 65.

Bile was present in three cases. In one case with an ulcer at the lesser curvature with adhesions, it was present throughout the test, including the fasting content. In another case, bile was present at the end of fifteen minutes after an abrupt drop in acidity from a high fasting point of 62 free and 74 total. In a third case, it was present at the end of the one and one-fourth hour period, accompanied by a prompt fall in acidity.

Blood was demonstrated in only two cases. The pain, which was described as burning, was present in only one case, which showed the moderate acidity of 54 free and 64 total.

Summary.—The characteristic features of the fractional test meal in gastric ulcer are: 1. The amount of the fasting content is comparatively large. 2. The response is weakened and delayed. 3. A high point of only moderate acidity is attained. 4. Free blood and pain during the test are unusual. 5. The emptying time is fairly uniform at two and one-fourth hours, occurring in seven of ten cases.

GASTRIC CANCER

This group consists of eight cases all confirmed by operation or postmortem. The fasting content varied from 10 to 238 c.c., according to the site of the tumor, the largest amount being associated with obstruction at the pylorus. The cases fall into two groups, first, a group of five anacid cases in which there was no response to the test meal, and second, a group of three cases in which there was a response and free acid was present.

Of the five anacid cases the fasting content showed a total acidity of less than 8 except in one case in which the total acidity was 60, on account of the presence of a large amount of lactic acid. There was little or no response. The curve was uniformly flat. The emptying time was early except when associated with pyloric obstruction.

In the three cases in which free acid was present, the acidity was fairly high on the fasting content. In two cases there was a rather prompt response, and the free acid values were fairly high in all. In one case, the high point was reached in thirty minutes, and in the others, at the end of two hours. In one case there was a continued secretion. In all three cases, with free acid present, the pylorus was not involved, the tumors being prepyloric, on the lesser curvature, and cardiac, respectively.

The free acidity reached 40, 56 and 74, respectively, the total acid and free acid curves being parallel to each other.

The emptying time was two hours or less in five cases and much delayed in three. Blood was present in five of the eight cases.

Summary.—1. In gastric cancer there are two types of curve, anacid and hyperacid. 2. In the anacid cases, the stomach empties early with one exception, which is associated with an edematous pylorus. 3. There is a continued secretion in two cases in which there is free acid. 4. In all three hyperacid cases, the site of the cancer was at the cardia or lesser curvature, the pylorus being free.

PERNICIOUS ANEMIA

This group consists of eleven cases, in all of which the diagnosis of primary pernicious anemia was clinically conclusive. The fasting content was small in amount, averaging 14 c.c. Free acid was uniformly absent. There was no gastric response to the test meal. In all cases, the benzidin test for blood was negative. The stomach emptied early and the food remained undigested throughout the test in all cases. In only one case was food present at the two hour period, six being empty at the end of one hour.

Three cases of severe secondary anemia resembled primary pernicious anemia, in all of which the etiology was known to be syphilis and chronic hemolytic infection. In two of these cases, the results of the fractional test meal differed markedly from those obtained in the cases of true pernicious anemia, in that the response to the test meal was marked, though somewhat delayed. In other words, free acid values of 35, 40 and 65, respectively, were obtained. In all cases, the response began thirty minutes after the test meal, and the high point was reached at the end of one and one-fourth hours.

Summary.—In pernicious anemia the following conditions were observed: (1) a small amount of fasting stomach content; (2) complete anacidity; (3) absence of blood; (4) unchanged food; (5) early emptying time, and (6) the presence of free acid in severe secondary anemias of known etiology simulating true pernicious anemia.

INFECTIONS

There is a small group of anacid cases of which mention should be made. These embrace chronic infections, such as arthritis, myositis, neuritis, chronic endocarditis, acne and boils. They occurred in patients who complained of no gastro-intestinal symptoms and in whom no acid was found during the fractional test meal. In a case of acne, the eruption apparently cleared up after the systematic administration of hydrochloric acid. Of two patients with hyperacidity occurring in duodenal ulcer, and given ulcer treatment during which the acid was continuously neutralized by the administration of large doses of sodium bicarbonate and magnesium oxid, one developed appendicitis, and the other, multiple acute arthritis. These facts suggest the protective nature of the hydrochloric acid in preventing infective agents from gaining access to the gastro-intestinal tract, or possibly to the general circulation, and would seem to warrant the making of a fractional test in all cases of chronic focal infections of unknown etiology. They also suggest the possible danger of general infection in neutralizing the acid in hyperacid cases.

case I thought might prove of value in the case of the prolapse of the urethra.

Accordingly I was able to replace by digital manipulation the swollen and prolapsed mucous membrane of the urethra, which formed the tumor. The urethra was found so dilated that I passed my finger into the bladder and could determine that there was no calculus present.

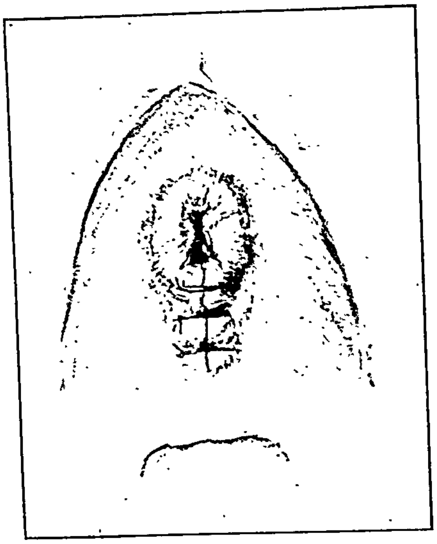

Fig. 5.—Interrupted sutures in mucous membrane.

A vertical incision was made in the lower part of the urethral meatus, through the mucous membrane, muscle and connective tissue. Following the plan that one usually adopts in searching for and bringing together torn fibers of the sphincter ani muscle, in a complete tear of the latter, I picked up with a tenaculum the circular muscle fibers in the right side of the incision and then the circular muscle fibers in the left side. I observed that the diameter of the urethra was lessened when traction was made with the tenacula. A lead probe, about the diameter of the normal urethra, was passed into the bladder, and two chromic gut sutures united the muscle ends tightly about the probe.

A chromic gut stitch was now passed through the muscle, beneath the mucous membrane, the entire circumference of the urethra. The needle entered the wound on the right side, passed in a semicircle and made its exit through the mucous membrane on the upper part of the meatus; reentered the same opening; passed in a semicircle on the opposite side, and made its exit in the left side of the wound. This suture was tied with the lead probe still in position in the urethra, to prevent a too tight closure of the urethra. Four catgut sutures united the edges of the mucous membrane of the wound. The probe was now removed and a Pezzer, self-retaining catheter was passed into the bladder, to permit continuous drainage of that viscus. The catheter was removed the fourth day. The convalescence was uneventful. The patient now has complete control of the urine and has had no sign of recurrence of the prolapse of the urethra.

I have been unable to find mention of this procedure in the literature of this subject.

CONCLUSIONS

1. The cause of prolapse of the urethra is neuromuscular, namely, the loss of balance of the nerve impulses to the detrusor urethral muscle, with subsequent changes in the vascular supply to the tissues, including the adjacent glands.

2. The result is a prolapse of the urethra followed by partial paralysis and relaxation of the constrictor muscles. The treatment should consist in replacing the extruded membrane and shortening the constrictor muscles as described in the case herein reported.

ABSTRACT OF DISCUSSION

Dr. Guy L. Hunner, Baltimore: Dr. Keefe's operation certainly brings before us a simple method of dealing with what can be a very complicated condition, and what has been made a complicated condition in most of our operations in the past. I just asked Dr. Keefe whether he depended entirely on the internal sphincter of the urethra or the external. I thought from his description that he depended on shortening the internal sphincter, but seeing his illustrations made me think he was depending on shortening the external sphincters, and this he says he does. I am surprised that he should get such good results in this way. It seems to me that the same principle applied to the internal sphincter would give more certain results and would be no more complicated. It is really the operation which Hill of Mongomery, Ala., described for the inncontinence sometimes seen after childbirth. Later, Dr. Kelly reported about thirty cases, and Dr. Deaver described the same operation. The operation I have used has an incision down over the urethra to the cervix and lays the anterior vaginal wall wide open. With fine black silk sutures I reach out into the reticular tissues, a second and third bite take up the urethra and the fourth bite reaches out into the opposite side. When the suture is tied it not only tends to shorten the fibers themselves, but it infolds the urethra. The operation is generally followed by a perfect result. I have had three partial failures in about thirty cases. This operation involves about the same principles that Dr. Keefe has described, but it deals with the internal sphincter.

Dr. Brooke M. Anspach, Philadelphia: I take great interest in Dr. Keefe's operation because I have been using a method somewhat like it in connection with other plastic work. In cases of cystocele with relaxed pelvic floor in old women, one often finds a large, gaping urinary meatus. By inserting sutures through the tissues at the neck of the bladder as Dr. Kelly has described, the internal sphincter is tightened and by resecting the anterior orifice very much after the manner illustrated by Dr. Keefe one can turn in the exposed mucosa. I think this plan makes satisfactory control of the bladder even more certain and it relieves the women of the irritation and pain which they often have from the exposed mucosa.

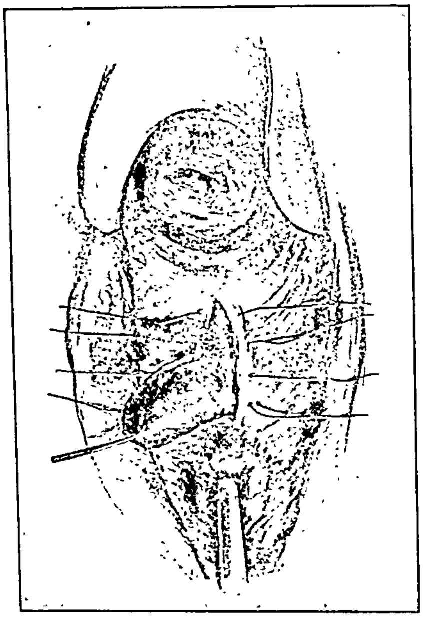

Fig. 6.—Dr. Emmett's buttonhole operation.

Dr. John W. Keefe, Providence, R. I.: The operation described by Dr. Hunner, to my mind, is of value, and in some of the aggravated cases may be preferable to the operation I have described. The muscular structures about the female urethra are in excess near the bladder and near the meatus, but there are circular muscles all the way along the urethra, besides the longitudinal muscles. The muscular structure just back of the meatus is so well developed that it alone, as has been proved by the case reported, may be sufficient to control the flow of urine. If this is so, it seems to me that the simpler the operation the better; but, if there should be a recurrence, I think then some operation on the internal sphincter or the portion of the circular muscles near the bladder may be of value. If, however, the simpler operation is sufficient, it is better, whenever possible, to employ this method.

THE PRESERVATION OF THE MENSTRUAL FUNCTION

IN DOUBLE SUPPURATIVE DISEASE OF THE TUBES AND CHRONIC METRITIS *

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BROOKLYN

The proper management of suppurative tubal disease in the young woman often taxes the judgment of even the experienced surgeon. When to operate, so as to afford the patient the greatest margin of safety, and how to operate, to obtain the best end-results, are questions that should be definitely settled. On these questions the surgeon and gynecologist, however, seem to hold different views. The gynecologist has learned from bitter experience that time alone sterilizes the tubal content and that when sufficient time is allowed, Nature is competent, to a considerable degree, to absorb and regenerate the function of many of the involved structures. We have also learned that different bacteria, each having a different life history, have a decided influence on the operative prognosis.

Simpson and I have promulgated and taught these rules as to the time for operation: 1. Radical abdominal procedure should never be done in the presence of acute tubal infections, or in acute exacerbations of chronic inflammatory conditions. 2. It takes time to sterilize the tubal content — from six weeks to three months in gonorrheal infections, and longer when the streptococcus is the infecting agent. Hence, a greater period of quiescence is necessary after postabortal infections, than when the clinical course points to the gonococcus as the causative agent. 3. The morning and evening temperature must be normal for a period of at least three weeks before intervention is considered. 4. Bimanual examination of the pelvic organs must show the exudate to have disappeared, or if an exudate is present, it should be hard and insensitive and the pelvic manipulation should not be followed by an exacerbation in temperature or leukocytosis or local sensitiveness, for unless the exudate is quiescent, manipulation will squeeze the toxins into the surrounding lymphatic channels and occasion a fresh resistive reaction. Hence the importance of making comparative leukocyte and differential counts before and after bimanual examination in pelvic inflammations, for by this method we may determine the state of their activity. 5. No patient should be operated on by the abdominal route unless the leukocyte count remains at a point under 11,000, and the polymorphic leukocytes at 75 per cent. or less. Success or failure depends directly on the observance of the foregoing principles, for unless Nature has had time for resorption of the exudate and regeneration of the pelvic tissues, conservation of any of the pelvic structures is out of the question.

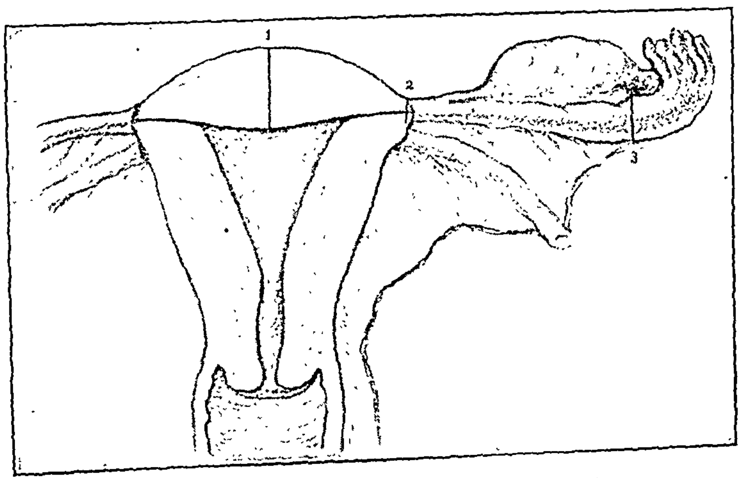

Fig. 1.—Location from which sections were taken.

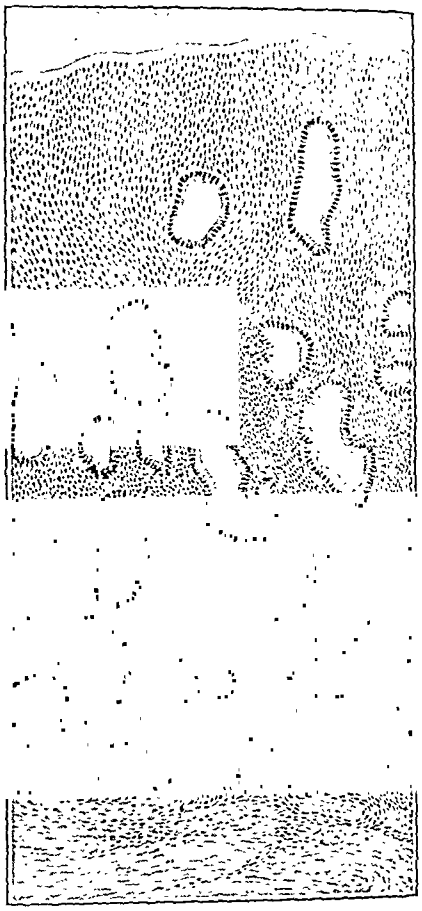

Fig. 2. — Normal endometrium from fundus uteri.

Infection of the tubes, resulting from an extension of the inflammation through the uterus, is usually bilateral, for gonorrhea involves the entire tube; hence any attempt at conservation offers but little protection against subsequent exacerbation. All of us have seen cases with one tube grossly involved, while the other, macroscopically at least, was free from disease, yet during convalescence, or while the patient was still in the hospital, the retained tube would light up and become a thick, swollen mass, adherent to the posterior surface of the uterus. It was formerly supposed that no fluid accumulation could occur in the tube until both ends were sealed, but by making serial sections through the isthmian and interstitial portions of the tube in a large series of cases, we have found that the uterine end never closes and that the apparent occlusion in the isthmian and interstitial portion is relative and not actual. This may be explained by the fact that the folding, edema and consequent swelling of the mucosa make the actual lumen so tortuous that intratubal pressure closes, or practically closes, the uterine end. If one recalls for a moment the anatomy of the interstitial portion of the tube, surrounded as it is with an inner circular muscular coat, which is continuous with the circular muscular coat of the uterus, one must be impressed with the fact that any inflammatory process of the mucosa must excite an inflam-

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

matory reaction in the submucous and muscular structures immediately surrounding the mucous tube. The muscular coat, when examined microscopically, is edematous and infiltrated with inflammatory tissue cells, and in the mixed infections, particularly when the streptococcus is present, there may be found small localized abscesses in the surrounding muscle tissue. This small round tissue cell infiltration results in an increase in the connective tissue within the uterine wall and thereby actually increases the size of the uterus. Such metritic changes do not subside after the removal of the distal portion of one or both tubes.

The persistence of this infection of the uterine muscle formerly tempted the French operators to do vaginal hysterectomy with double salpingectomy, for chronic suppurative tubal infection. Many of our more conservative surgeons acknowledge that a gonorrheal infection of the tube can never be wholly cured without ablation of both tubes, and that the persistent leukorrhea, which under certain excitation regains its infective properties, and the increased amount of the menstrual flow, which with the pelvic pain makes up the clinical syndrome in these cases of chronic inflammation, are due to the enlargement and increased blood supply to the metritic uterus, and because of the persistence of these symptoms, have advocated hysterectomy when salpingectomy is done, with the retention of one or both ovaries.

While we are agreed that the retention of an infected uterus is a menace to the woman's future health, my own feeling has been that when *so much care is taken to preserve the function of ovulation, there should be like care in preserving the function of menstruation,* as ovulation without menstruation contributes little to the patient's well-being. Sections through the uterus, between the fundus and the internal os, show few if any of the pathologic changes which may be demonstrated about the pars interstitialis. It is only in the cervical region, in Naboth's glands, in the columnar epithelium of the cervical canal, in the fundal region, and in the structures surrounding the pars interstitialis that there is a persistence of the inflammatory changes described above. Therefore, it must appeal to any one of considerable clinical experience that, in a given case of chronic specific infection involving the cervix and the tubes, a cure cannot be effected, except by the removal of these foci, and to attain this end many are doing panhysterectomy. The endocervicitis and cervicitis may be controlled by amputation or linear cauterization, but the tubal infection cannot be checked or its sequelae removed without proper attention being paid to the pars interstitialis and the structures immediately surrounding it. Clinical experience has shown that after amputation of the fallopian tubes, the stump which is left in the wall of the uterus may be a source of continued metritis and annoying discharge, or may remain the site of focal infection and cause an exudate and intestinal adhesions. Again, the stump of an amputated tube may become the seat of a tubal pregnancy, for unless the cornu is excised, the lumen of the interstitial portions may remain patent. This assertion is not theoretical, as I have seen three ectopic pregnancies in this location.

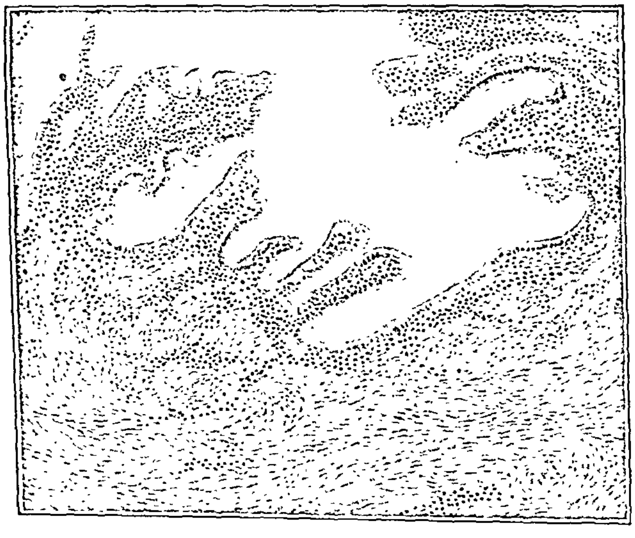

Fig. 3.—Isthmic portion of tube showing round cell infiltration at a distance from the reaction zone.

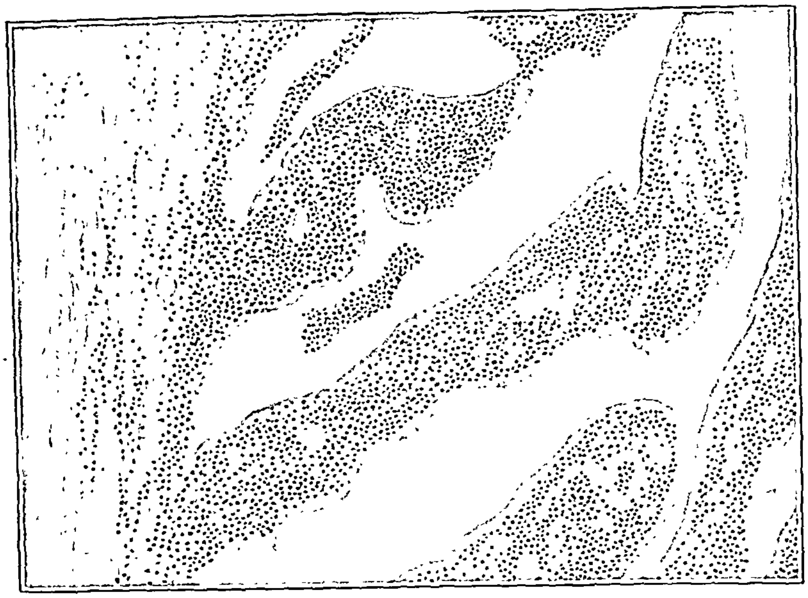

Fig. 4.—Midportion of tube showing inflammatory reaction with round cell infiltration.

In gonorrheal infection, notwithstanding the fact that the gonococcus is primarily a surface organism, it quickly spreads to the deeper layers of the tube, and the gonococci and their toxins may escape not only through the abdominal ostia, but actually through the walls of the oviducts, and excite a local resistance in the form of a plastic exudate at these points. Ordinarily, however, the inflammatory exudate forms within the tube and escapes from the abdominal end into the peritoneal cavity and causes a perioophoritis or an adhesive peritonitis, or the abdominal ostia of the tubes may become closed and the contents be confined within the tube, distending it, resulting in a sactosalpinx, which leaks from time to time into the uterus or abdominal cavity, setting up an exacerbation of the peritoneal inflammation. Both tubal appendages are generally involved, though the infection of the one may antedate the infection of the other. Unilateral salpingitis of gonococcic origin is practically unknown. The disease involves the entire tube. Why, symptoms, by abdominal incision, through which adhesions are separated and the peritoneal cavity protected from the spread of infection by gauze packing; the tube from whose abdominal end seropurulent fluid is flowing is seized and wrapped with a pad of gauze and forcibly milked, squeezing out the purulent fluid and exudation, and in several cases I have seen uncomplicated convalescence follow with regularity of menstruation and hope of procreation.

Dr. Bertha Van Hoosen, Chicago: I think it is important that young women should have the menstrual period preserved, and by leaving the circulation so that the menstrual period is preserved it does much to give the woman speedy relief from the infection. My operation is much like Dr. Polak's. The first step is practically the same. The next step is to put the angiotribe on the uterus. It is practically impossible to include the muscularis in closing the angiotribe, but the peritoneum will be drawn by it over to the side and the uterine muscularis will be pushed toward the middle line. In this way the ureter is pushed to one side; another angiotribe is put in front so that the ureter is pushed still farther out of the way and a little more peritoneum is included in the grasp of the forceps; the same is done on the other side. The peritoneum is incised from just above the bladder line up to the horn of the uterus, because the peritoneum is very adherent to the body of the uterus. The peritoneum is lifted from the uterus by a simple pull with a tenaculum. When the uterus is entirely separated down to the internal os, a dissecting scissors is slipped in and the mucosa of the cervix and enough of the underlying muscularis to include the glands are cut. In this way none of the arteries is interfered with except the very small vessels. The parts are then closed, one stitch being put through the cervical portion anteroposteriorly. The clamp is taken off the part nearest to the middle, and with a silk suture union is made to the fundus. In none of my cases has there been a death.

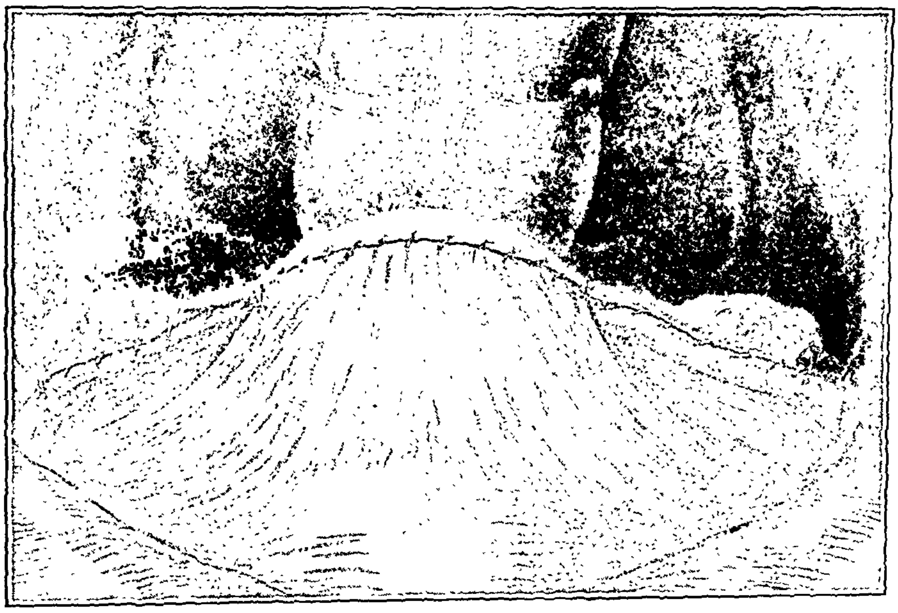

Fig. 9.—Fundal wound peritonealized by reflecting the peritoneum of bladder over it.

Dr. H. J. Boldt, New York: Dr. Polak's words are a verification of the stand which I took many years ago. With regard to further conception, I cannot say that I have had the same experience that Dr. Montgomery has had, since I have not seen any of my patients conceive subsequent to surgical intervention of that kind.

Dr. Harvey P. Jack, Hornell, N. Y.: At our New York State meeting in Utica I detailed an operation looking to preservation of the childbearing function in these cases. It will not always, perhaps not often, succeed, but it is worth trying on its results, even at the slight risk of being compelled to operate again. After I had read my paper at Utica several men came to me and reported successful results as to childbearing as a consequence of conservative work on the tubes. Some of these patients are known to recover and regain the childbearing function without any surgery, so that I think it is time we halted in our efforts, in many of these cases, to do ideal surgery and try to do practical surgery.

Dr. R. H. C. Gibbons, New York: I have never taken stock in these "conservative" operations, although I have done many of them. Many patients who have had "conservative operations"—tube, ovary and appendix removed—have not recovered their health. When the uterus is badly infected it should be taken out in greater part; also the appendages.

Dr. Henry O. Marcy, Boston: This subject has fluctuated back and forth through the years. We should place more emphasis on the conditions for which we operate. It is the character of the infection one should think of quite as much as the location. If the tubes are in the condition referred to by the author of the paper, it is unwise to preserve them. On the other hand, it is wise to be conservative in that one is dealing with that which is important, not to the individual alone, but to the race.

Dr. John Osborn Polak, Brooklyn: I wish to disclaim any originality for the conception of this operation, as the principles involved were conceived and published by Blair Bell of Liverpool and Beuttner of Geneva. Only the perfected technic regarding the circulation of the ovary has been developed by me. With regard to the remarks of Drs. Montgomery and Jack, their discussion is irrelevant, as they are speaking of another class of cases, cases which we all know time will regenerate and in which function will be reestablished. Before describing this operation I showed two slides on the screen which even my friend Dr. Jack must admit are beyond conservation. This operation is only advocated in the class of cases in which the ordinary operator does a double salpingectomy with panhysterectomy, conserving one or both ovaries, with an interfered-with circulation for their internal secretion. Our follow-up work has shown us that the retained ovary after hysterectomy becomes cystic, the seat of adhesions, and that its life history regarding internal secretion is very limited, because its efferent circulation is interfered with.

Two classes of cases have been discussed, one in which the patient will in time get well without operation or at most with the formation of adhesions; the other in which the pathology is so great that nothing short of ablation of the diseased structures will effect a cure. It is in these that I am striving to save the menstrual function as well as the ovarian secretion.

Child Labor Day.—It has been customary each year to designate the fourth Saturday, Sunday and Monday for observance as child labor days in the churches, synagogues, schools and clubs of the country. For 1918 the days designated by the National Child Labor Committee are January 26, 27 and 28. The observance of these dates as Child Labor Days has been approved by Secretary of War Baker, Commissioner Claxton of the United States Bureau of Education, Miss Julia C. Lathrop of the Children's Bureau and Owen R. Lovejoy, general secretary of the National Child Labor Committee, and the officials of many other organizations. To furnish material for programs the National Child Labor Committee is distributing pamphlets dealing with the war situation and with child labor and educational problems in general. Secretary Baker, in endorsing the plans for the observance of the days, said: "The ravages of hostilities bear heavily indeed on the present generation, but we must not permit the effects of it to be visited on the children of the nation. The tribulations borne by the present should make us conserve to as great a degree as possible the health and energies of the coming generations."

CHOLECYSTECTOMY WITHOUT DRAINAGE *

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At this time gallbladder surgery is occupying the attention of surgeons perhaps more than any other subject. The reason for its prominence is obvious. Cholecystostomy, once the operation of choice, has been denounced by an able coterie of surgeons as giving permanent results in not more than half of the cases; and cholecystectomy, a supposedly more dangerous operation, is being substituted for it whenever conditions allow.

All are familiar with the condition found at operation after a previous cholecystostomy. Often the liver is turned up at its lower border and lies on a level with or above the costal margin, having diaphragmatic and peritoneal adhesions. The duodenum, transverse colon and stomach are often adherent to the gallbladder and the liver. I believe this is due entirely to the drainage, which does not allow the liver to assume its normal position, and which, in my opinion, is responsible for the adhesions to the other structures. In every case in which I have done a cholecystostomy and later gone back into the abdominal cavity, I have found a mass of adhesions about the gallbladder. In fact, I have never seen, in secondary operations elsewhere in the abdomen, the same number and density of adhesions. I have never found a case which did not have this condition. It is impossible for me to state from my operative observation how many adhesions form about the gallbladder region after a cholecystectomy without drainage, as I have never had occasion to reopen the abdomen in such cases. I feel confident that fewer adhesions would be found associated with a more normal condition of this region. I am sure, however, that this result will be obtained only with careful removal, allowing no bile to escape into the cavity.

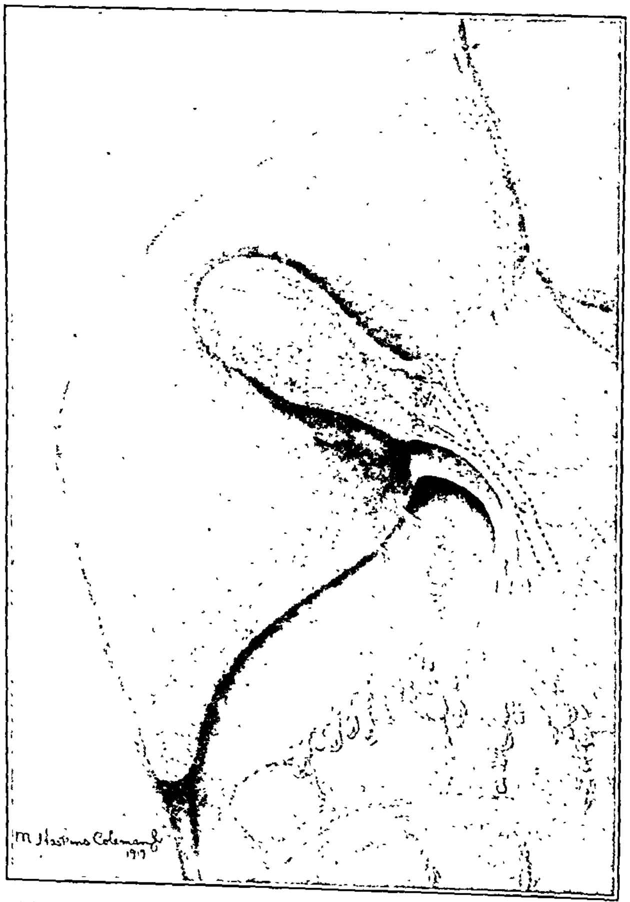

Fig. 1.—Relations of cystic duct to common duct. Dotted lines indicate direction of incision in hepatoduodenal ligament.

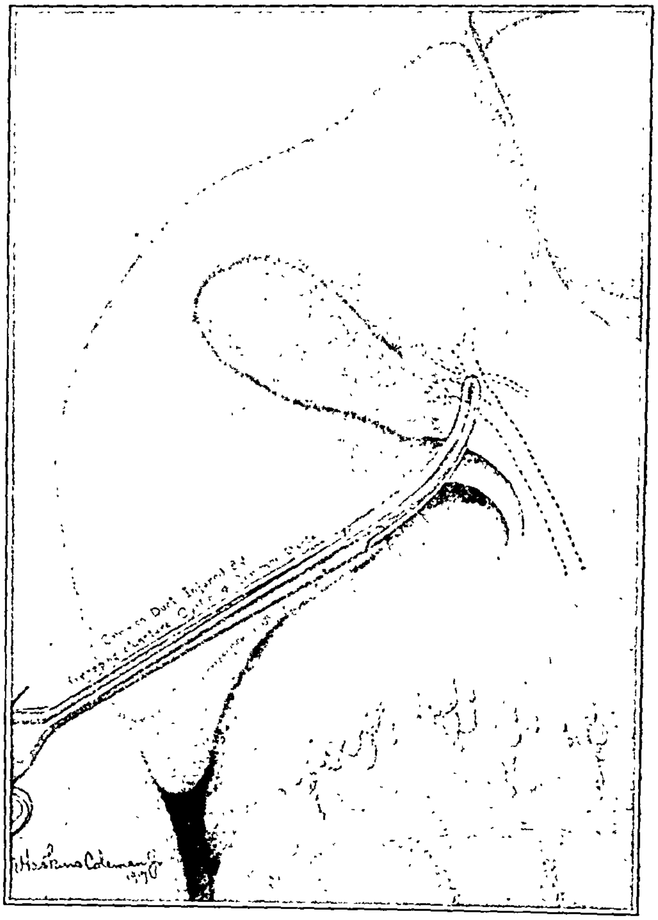

Fig. 2.—Method generally employed. When making sure of the cystic duct, the curved artery clamp is apt to grasp and injure the common duct as well.

In some recent experiments by Dr. Budd and myself, we were able to demonstrate that presumably healthy bile, if spilled in the region of the gallbladder, would produce a moderate amount of adhesions, and that bile infected with the colon and typhoid bacillus would produce extensive adhesions. We were also able to show that infected bile spilled in the region of the gallbladder, plus drainage, were followed by even more extensive adhesions. We removed gallbladders without liberating bile in the cavity, closing without drainage, and in these cases the number of adhesions was negligible.

About five years ago, we were first impressed with the number of cases of cholecystectomy which never leaked any bile through the drain after operation. We began, in carefully selected cases, to close without drainage, and found that excellent results followed. We began to enlarge more and more on this group,

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* Read before the Maryland Medical and Chirurgical Society, Baltimore, April 25, 1917.

until now we remove quite a large percentage of gallbladders without drainage. We do not believe that all cases can be closed without a drain, but do contend that a big percentage can be done in this way, provided, of course, the surgeon is careful to spill no bile in the cavity and to leave no bleeding surfaces.

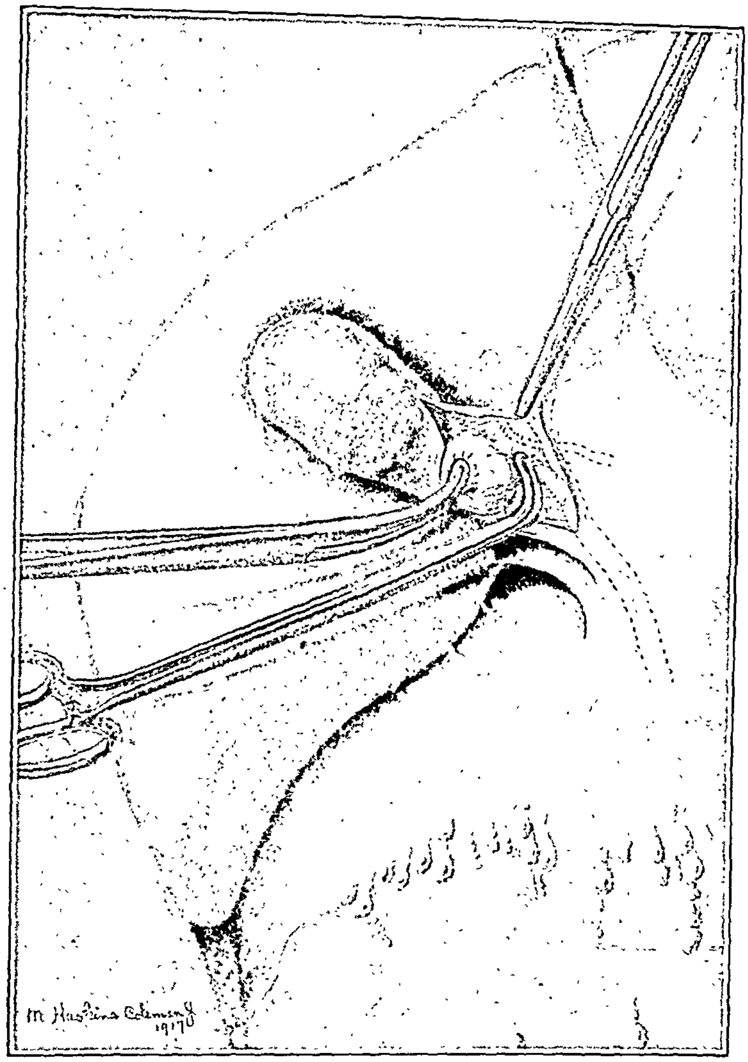

Fig. 3.—Incision made in hepatoduodenal ligament. Pouch of gallbladder rotated up, and right angle clamp placed on cystic duct and artery.

We believe that the technic of the removal of the gallbladder, whether from the fundus down or from below upward, is largely a matter of each surgeon's preference as to the method by which he can best control the situation. I myself believe that the removal from below toward the fundus offers the greatest advantages.

OPERATIVE TECHNIC

Using the right rectus incision curving at the upper end toward the xiphoid, we bring the gallbladder at once into view. Rotating the liver upward, we make an incision in the hepatoduodenal ligament, as shown by the dotted line in Figure 1, and by blunt dissection bring the cystic duct into the field.

The method generally employed is to place a curved clamp over this ligament, as shown in Figure 2. We believe that this in itself is responsible for many reported injuries to the common duct in cholecystectomy, as the clamp, in being placed sufficiently far to assure the grasping of cystic duct and artery, is liable to grip the common duct as well. There is also a possibility of a ligature being put through or around the common duct when the cystic duct is tied off, or of the scissors injuring it when the cystic duct is cut. It is to be borne in mind that the cystic duct does not join the common duct at right angles in a great many instances, but runs parallel to it and right alongside.

We believe that this accident is obviated absolutely in our method. Grasping the pelvis of the gallbladder and pulling upward, we are able to apply a right angle clamp on the cystic duct and artery, as shown in Figure 3. Figure 4 illustrates what we have found to be the usual relations of the cystic duct to the pelvis of the gallbladder, certainly in pathologic conditions. Then, a No. 2 catgut ligature is placed around the cystic duct close up to the junction with the common duct, and we are careful to cause no stricture of the latter. We thus avoid leaving sufficient cystic duct to form a bud in which future trouble is liable to occur. Another ligature is now placed around the cystic duct and artery, and the two are cut (Fig. 5). By blunt dissection with the back of the knife and the finger, the gallbladder is dissected back to the fundus, care being taken to leave the peritoneal coat of the liver intact. The gallbladder is removed, sufficient peritoneum being allowed to remain to close the space without tension. A crown suture is placed through the peritoneum and under the stump of the cystic duct, being brought back over the stump and tied, as shown in Figure 6. This drops the stump back in the liga-

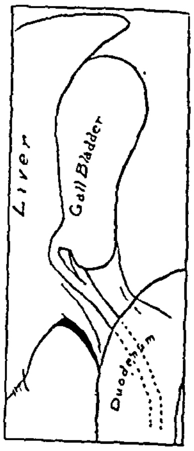

Fig. 4. — Semischematic view illustrating the usual relations of cystic duct to pelvis of gallbladder.

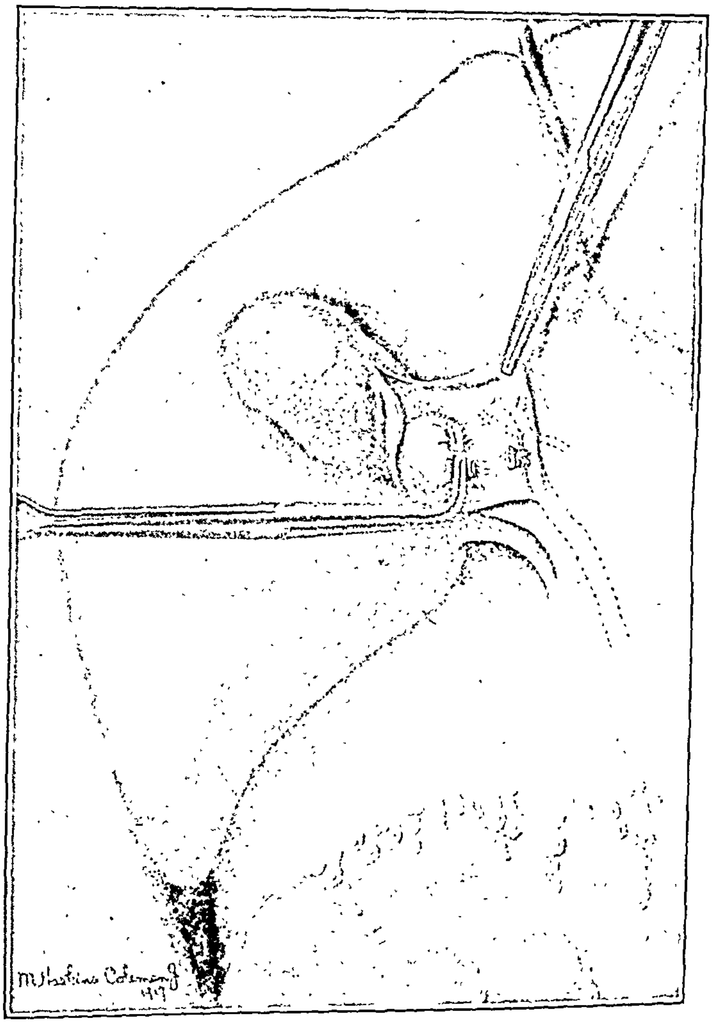

Fig. 5.—Ligature placed around cystic duct, also around cystic duct and artery close to common duct, and cut.

ment, and a continuous suture closes all raw surfaces and leaves a clean field, as shown in Figure 7. We then close without drainage, and have no fear that bile will escape into the peritoneal cavity.

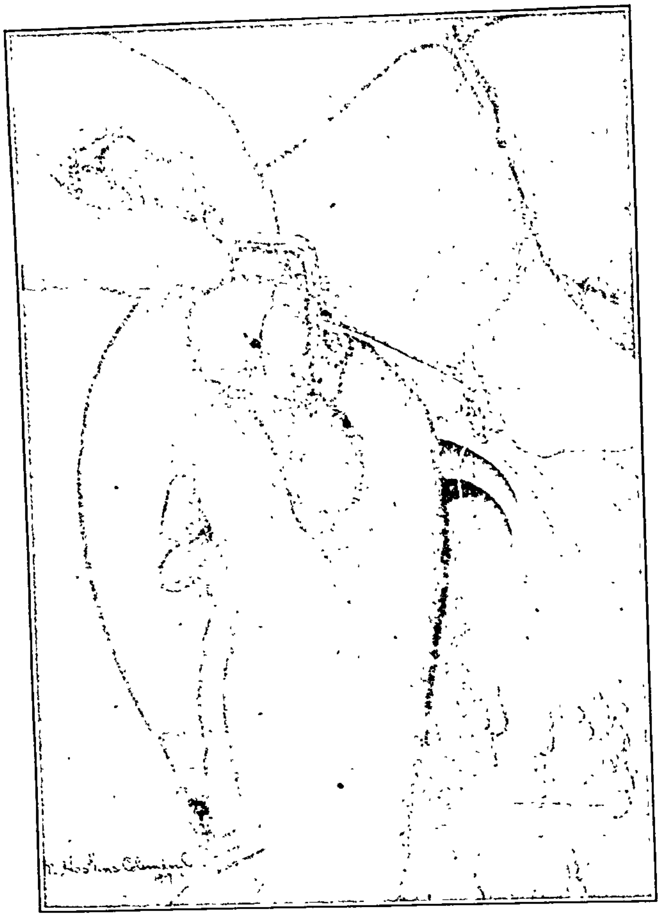

Fig. 6.—Crown suture in place under and over cystic stump. Gallbladder being dissected back to fundus.

RESULTS OF OPERATIONS

Our experience in surgery of the gallbladder is based on 549 operations for cholelithiasis and cholecystitis with twelve deaths, or 2.2 per cent. In this series, 466 patients, or 86 per cent., had gallstones in the bladder or duct; eighty-two patients, or 14 per cent., had no gallstones, but showed various stages of cholecystitis. There were 398 cholecystostomies with seven deaths, or 1.7 per cent., and 107 cholecystectomies with one death, or 0.9 per cent. In thirty-eight of our cholecystectomies, we left no drainage. It was in this group that the one death occurred. There were forty-four choledochotomies with four deaths, practically 9 per cent.

There were twenty-six secondary operations. Twenty-one followed the operation of cholecystostomy and five occurred after choledochotomy. Gallstones were found in twelve of the secondary operations; seven in the cholecystostomy and in all five of the choledochotomy group.

This series presents several interesting facts. The women outnumbered the men five to one. The percentage of deaths in the common duct cases was about five times as great as the mortality in other gallbladder work. The causes of death in the common duct group were secondary hemorrhage and infection. The mortality in our cholecystectomies is much lower than in the cholecystostomies. This is due to the fact that cholecystectomy on the whole was performed in the more favorable type of case.

The patient lost in our cholecystectomy group was a woman aged 66 with a simple case of cholelithiasis. The gallbladder was ruptured during removal. Drainage was not used, as we were able to cover the raw surface and clean out the peritoneal cavity. She had urinary suppression, and died three days after operation. At necropsy a small abscess was found between the liver and transverse colon, and an acute nephritis was revealed. There was no evidence of the escape of bile. It is impossible to say whether she died from acute nephritis or an infection; but in future, under similar circumstances, we shall drain.

It should be borne in mind that this mortality represents the patients who have died in the hospital after operation on the gallbladder. Some of these patients undoubtedly died of causes other than those which can be attributed to the immediate effect of the operation, but, because of the fact that they died in the hospital, we have included them in the gallbladder mortality.

CONCLUSIONS

1. Cholecystectomy for simple infections of the gallbladder is a most successful operation, especially if this can be done without soiling the peritoneum by the contents of the gallbladder, and closing without drainage. 2. Adhesions of organs which normally have a certain amount of mobility cause postoperative complaints, especially in the gallbladder region, and we feel that any operation which will limit these is certainly a step in the right direction.

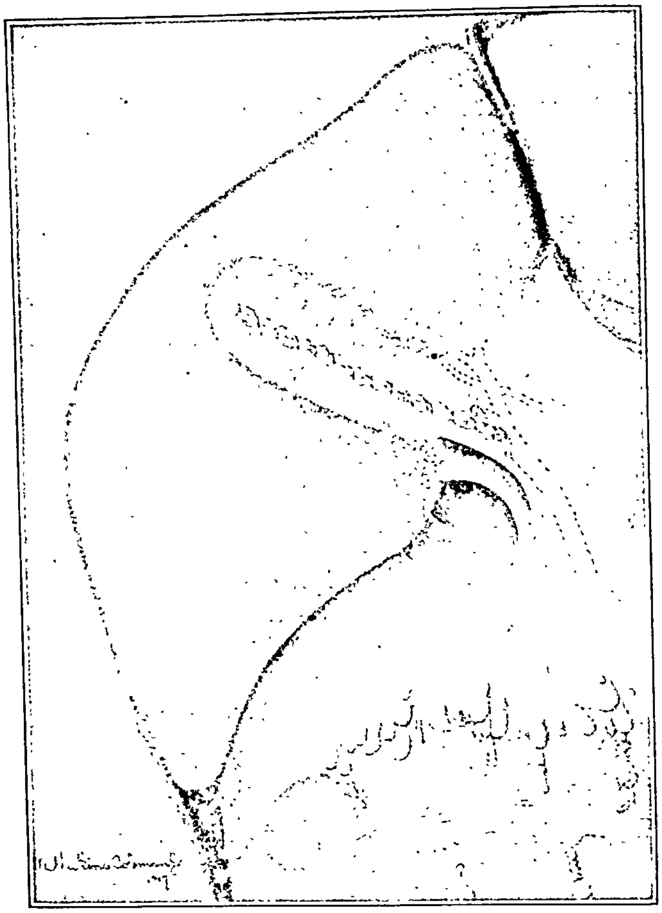

Fig. 7.—All raw surfaces covered, and clear field left ready to close without drainage.

PIGMENTATION OF THE HIND-GUT

A PATHOLOGIC AND EXPERIMENTAL STUDY *

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The presentation of a paper based on the observation of a small number of cases must justify itself by dealing with a rare condition or by demonstrating new facts concerning a well known subject. With the advance of intestinal surgery, and the increasing number of "developmental reconstructions" and other operations which involve removal of the cecum and part or all of the first portion of the hind-gut, we are able to note with more frequency a pigmentation or melanosis of the mucosa of both organs. This pigmentation may or may not be transitory; but the rarity of its observation at the necropsy table, and the fact that at times a fading of color may be noted through the proctoscope, lead to the supposition that, in not all cases at least, is it macroscopically permanent.

PATHOLOGY

Gross Pathology.—Both the gross pathology and the histopathology of pigmentation of the hind-gut have been so clearly given by Pick that any subsequent description of the tissue changes observed must of necessity follow him closely in detail if not in phraseology. Macroscopic appearance of the intestinal mucosa in pigmentation of the hind-gut not only varies with the amount of pigment present, but is evidently influenced to a certain extent by the manner in which the tissue is handled. In tissue removed at operation, the color is materially affected by congestion which follows clamping, and in three cases here cited pigmentation was revealed only by microscopic examination. This factor may to some extent be responsible for the infrequent recognition of pigmentation of the hind-gut at time of operation and divert such tissue from the laboratory to the furnace of the unscientific hospital. In such portions of the hind-gut as may be observed by means of the proctoscope, the color varies from gray-black to light brown, or it may have the mottled "toad's back" appearance mentioned by Pick. Two specimens of the present series which were removed at operation and included the ileocecal valve, cecum and ascending colon were uniform gray-black or mottled throughout. Pick has described the mucous membrane as being mottled like a toad's back, and noted the following variations in color: "The tint may become a little lighter in diffuse spots of the mucosa, or in an entire segment, passing from a deep black into a lighter shade of brown." He further notes that there may or may not be a failing of melanosis toward the rectum. On these minor points my observations are not entirely in accord with those of Pick. In the one case seen at necropsy there was an even tar-black pigmentation from ileocecal valve to rectum; in the other cases, even shading throughout the specimen. It is natural that the influence of postmortem change should be thought of, but the specimen of this series was secured within two hours after death, and it is not probable that such a factor would be overlooked by Berlin's most astute pathologist. A cut section of the intestinal wall may show a thin brown or black line corresponding to the mucosa, or the surface may exhibit nothing indicative of pigmentation. There is variation in thickness from that of tissue paper to somewhat more than normal. Extreme thinness is confined to the cecum and is, of course, a condition frequently noted in long standing cases of intestinal stasis. The serosa shows no change. In Case A, the mesenteric glands of the mesocolon were darkened. In Case A, the abdominal organs, as in the cases of Pick and other observers, were free from pigment.

Microscopic Pathology.—When the intestinal wall has markedly thinned, there is, of course, a diminution in the depth of the gland pits; otherwise they appear to maintain their normal depth. The cells lining the glands may be somewhat increased in size, they may present a normal appearance, or they may be somewhat smaller than normal. The goblet cells are neither increased or diminished in number, nor do cells foreign to this layer appear. The connective tissue of the mucosa is not affected except in the very thin intestines, where it appears to have undergone some degree of atrophy. In the connective tissue of the mucosa, between the basement membrane of the gland epithelium and the muscularis of the mucosa, are observed a varying number of pigment cells. These cells may be arranged in a uniform layer and lie close to and follow the basement membrane of the epithelium, or scattered through the stroma of the mucosa. The cells vary in size from 7 to 20 microns and have a single round or oval concentric nucleus. Such pigment as they contain is not uniform either in size of granules or in color. Some cells are gorged with large light or dark brown granules, while others hold dust-fine, saffron-colored particles. There is also a certain amount of free pigment in the form of isolated granules or clumps of granules, though the clumps of granules may be pigment cells so overloaded with pigment as to obscure their cell bodies. The pigment cells resemble morphologically the plasma cell found normally in this locality, though Pick considers them connective tissue cells of the tunica propria, and Henschen and Bergstrand regard them as several types of the wandering class of connective tissue cells of the stroma of the mucosa. Sections of two ileocecal valves showed pigment to stop at a midpoint in the valve, the ileac side being pigment free. Large numbers of eosinophils may at times be seen in the mucosa, and in Case A an occasional ameboid-looking body was noted, but the character of these bodies could not be determined. The last tissue examined exhibited pigmentation of the distal end of the ileum.

Submucosa: In several cases pigment cells were found in the solitary lymph nodes, and occasionally a cell can be seen beneath the muscularis, which is in contradistinction to the description of Pick, but has been noted by Henschen and Bergstrand. The muscular walls and serosa were free of pigment cells, and neither I nor my colleague, Dr. Jeffries, could note microscopic change worthy of mention other than occasional atrophy. Mesenteric glands: In Case A, pigment cells corresponding in every way with those of the mucosa could be seen. These cells appeared to be principally gathered on one side of the gland in a position probably corresponding to the junction of the afferent duct.

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* Read before the Section on Pathology and Physiology at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

* Because of lack of space, *this article* is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints.

Chemical Examination.—It would be of no avail to chronicle in detail a series of failures. All solvents and dyestuffs which I could think of, or which were suggested by the experiments of others, gave negative results. Hence, if deduction can be drawn from negative results, the pigment, from its resistance, must resemble the melanin group.

NATURE OF THE PIGMENT

Pigments relating to intestinal pigmentation fall naturally into two groups—exogenous and endogenous. Of exogenous pigments but little need be said, they being, as a rule, salts of either silver or mercury, easily accounted for in the clinical history of the patient and demonstrated without difficulty by chemical and microchemical methods. Endogenous pigments present a much more difficult problem for consideration, and it is practically impossible to confine such considerations to any specific pigment or group of pigments. Von Gierke[12] says one can divide endogenous pigments into two great groups, those derived from blood pigment (hemoglobin pigments) and those formed from other body substances through cell activity (autogenous pigments). If one follows the classification of Heuck, endogenous pigments encountered in the body may be divided into the hemoglobin pigments and the autochthonous pigments. Further subdivision separates the hemoglobin pigments into three groups, malarial pigment, hematoidin and hemosiderin. The autochthonous pigments include the fat-containing abnutzungspigment and the melanin. In contradistinction to the classification of Heuck, and as illustration of the diversity of opinion on the subject of body pigments, may be quoted the following somewhat broad definition by Adami.[13] In the paragraph dealing with "modified hemoglobin," Adami speaks of a succession of modifications of the hemoglobin pigment "hematin," leading to the eventual deposit in tissue of two, or more correctly, three substances, hematoidin, hemosiderin and hemofuscin. Further, Stengel and Fox[14] say that consideration of hematogenous pigment "concerns the deposition of pigments derived from hemoglobin, of which there are two groups, the siderous and the nonsiderous. The chief siderous pigment is hemosiderin, which has, however, many modifications; the nonsiderous pigments are derivatives of hematin-hematoidin, hemafuscin, melanin, etc." Heuck, on the other hand, does not think that hemosiderin is derived from hematoidin, nor does he consider hemofuscin one of the pigments coming from coloring matter of the blood but rather belonging to that class of pigments originating from lipoid substance and in consequence being an abnutzungspigment identical with the lipofuscin of Borst. As to the derivation of melanin or melanins, von Furth, according to Adami, regards them as being developed by the action of intracellular oxidases (tyrosinase) on the aromatic chromogen group of the protein molecule.

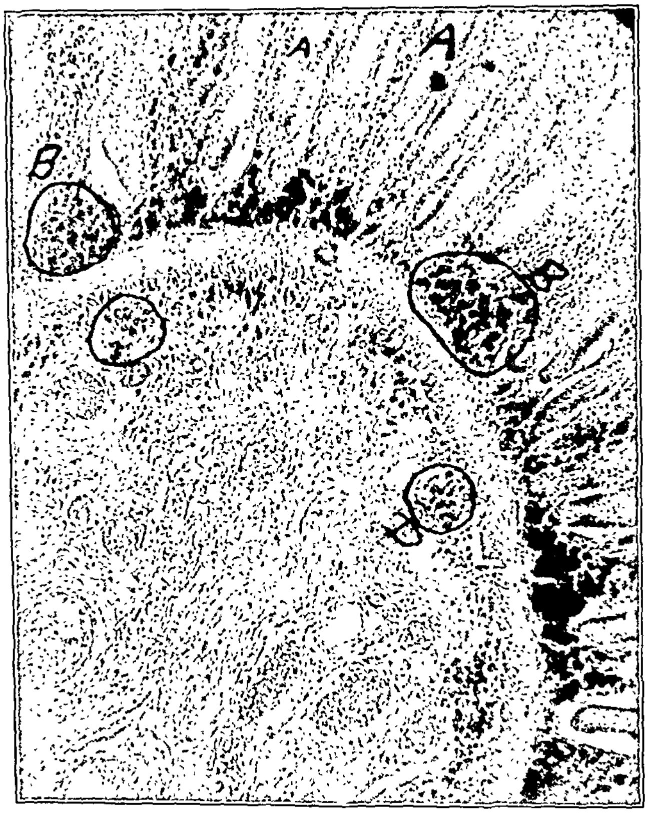

Fig. 1.—Pigmentation of the ileum: *A, A*, gland; *B, B*, pigment cells; *C*, muscularis mucosa; *D*, submucosa; pigment cells in submucosa. (Photograph by Dr. Wightman.)

As it is not necessary here to regard malarial pigment, the chemical composition of only two of the blood pigments need be considered, following the classification of Heuck. Concerning the exact nature of these pigments and the chemical processes involved in their formation there is much controversy. Their characteristics in general, however, are as follows: Hematoidin is a red or brownish gold, crystalline or granular substance, dissolved in concentrated sulphuric and nitric acids and distorted by alkalies; its iron reaction is negative. Hemosiderin is a golden yellow to brown, granular or flaky substance, soluble in acids but insoluble in alkalies; its iron reaction is positive. The definition of abnutzungspigmenten or lipoid pigments given by von Gierke is that by such are understood a class of granular, golden brown pigments that give a lipoid reaction. As illustrations he mentions pigment found in heart muscle, liver, seminal vesicles, etc., which may be normally present or occur in diseased tissue. Heuck describes it as a golden brown, flaky substance insoluble in acids or alkalis; its iron reaction is negative; it is always positive to basic dyes and irregularly positive to fat dyes. Hammersten,[15] in writing of melanins, says that there are some forms which are slightly soluble, and others easily soluble, in alkalis. He mentions choroid pigment as an example of sulphur-free melanin. Others mention melanin as a substance containing a minimal amount of iron but a relatively considerable quantity of sulphur. According to Heuck's table, melanin is a substance occurring in the form of brown crystals or flakes; it is insoluble in acids and alkalis and does not take any stains which are used for the identification of abnutzungspigment.

For the identification of pigments, one must consider the morphologic, michrochemical and staining tion of Heuck that we are merely observing an increase of a normally present pigment. From the position of the vast majority of pigment cells it would appear that the ferment acts with rapidity on the first intercellular substance which it encounters after passing the basement membrane. In support of this theory it must be remembered that in the mucosa of the cecum and hind-gut we are not dealing with as highly specialized tissue as that of the liver or of the kidney, but with a tissue whose even passive function has been considered by some as anatomically and physiologically nonessential. As the cecal and colonic mucosas are practically passive walls through which fluids pass, it is more probable that the action of the pigment-producing ferment is on intercellular substances and fluids and not on intracellular substance of any cell or group of cells. The variation in pigment building capacity mentioned by Pick should depend more on duration and intensity of stasis than on difference of individual property to produce pigment-forming enzyme. This is supported by the statements of Henschen and Bergstrand regarding the number of pigmented intestines they encountered in individuals past 40, and by my experience with intestines removed because of chronic intestinal stasis.

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[12] Von Gierke, E., in Aschoff, Ludwig: Pathologische Anatomie, 1911, 1.

[13] Adami, J. G.: Principles of Pathology, 1910, 1.

[14] Stengel and Fox: A Textbook of Pathology, 1915.

[15] Hammersten, Olaf: A Textbook of Physiological Chemistry, Mandel, 1900.

Pigment cells are, in my opinion, plasma cells which have acquired visible phagocytic properties. These cells are found in considerable numbers in the stroma of the mucosa; and the cells studied appeared to be morphogically nearer the plasma cell than any other found in the locality. By arrangement of the pigment-containing cells, it would appear that the plasma cells attempt to follow the action of the white cells, which become phagocytes, and to form a protecting wall against further invasion by pigment-producing enzyme, in addition to removing the pigment. Were it possible to follow microscopically the change accompanying permanent acceleration of the fecal current, one could no doubt observe, coincident with decrease of pigment-forming enzymes, a gradual assimilation of pigment granules, as suggested by the experience of Lynch. Migratory properties of the plasma cell carry it to different parts of the connective tissue stroma, and at times to and beyond the muscularis. Those pigment cells seen in the solitary follicles and in lymph nodes of the mesocolon may be accounted for by the migratory properties of the cell or by the effort of the lymphatic system at removal of waste products.

The theory of Lynch is so at variance with that of other writers that it must be considered apart. It should be of material interest to the reader because of the unusual opportunity for the clinical observation on which it is partially based. I, however, cannot consistently reconcile Lynch's idea of the effect of bacterial infection with the number of nonpigmented but severely infected hind-guts which I have had the privilege of examining for him. Furthermore, it is difficult to understand why a selective action for intestinal pigments should be conferred almost uniformly on cells of the connective tissue stroma of the hind-gut.

REPORT OF CASES

SERVICE OF DR. LYNCH

Case 1.—Mrs. M., aged 45, had had obstipation for ten years. An operation for developmental reconstruction was performed. Tissue examination revealed pigmentation confined to the mucosa of the hind-gut. The solitary nodules were pigment free. There was no change in other intestinal walls.

Case 2.—Mrs. O., aged 50, exhibited symptoms which Dr. Lynch associates with pigmentation of the hind-gut. There was prolonged constipation, toxemia, urine at times free from indican, and blood in the stools. Proctoscopic examination revealed ocher-colored pigment extending from the anus to the sigmoid. Tissue examination of bit snipped through the proctoscope revealed pigmentation of the mucosa. The appendix exhibited pigmentation of the mucosa.

SERVICE OF DR. DRAPER

Case 3.—Mrs. R., aged 44, had severe hemicrania averaging fifty a year, together with severe congenital constipation. An operation for developmental reconstruction was performed. Tissue examination revealed pigmentation confined to the mucosa. The lymph nodes were free. There was pigmentation of the cecal half of the iliac valve. There was no change in the muscle walls.

Case 4.—Mrs. B., aged 34, had mild mental obsessions and marked depression, with severe congenital constipation. An operation for developmental reconstruction was performed. Tissue examination revealed no pigmentation of the ileum. The cecal half of the ileocecal valve was pigmented. There was pigmentation of the mucosa of the cecum and the hind-gut. Solitary follicles were pigment free. There was no change in the muscle walls. The lymph nodes of the mesocolon were pigment free.

Case 5.—Mrs. R., aged 55, had chronic constipation for twenty years. An operation for developmental reconstruction was performed. Tissue examination revealed pigmentation of the mucosa only. There was no change in the muscle walls.

Case 6.—Mr. A., aged 60, had profound toxemia. Obstipation had existed for twenty years. An operation for developmental reconstruction was performed. Tissue examination revealed pigmentation of the terminal portion of the ileum and the entire hind-gut. Pigment involved the solitary follicles as well as the mucosa, extended into the submucosa, and was to be found in the lymph nodes of the mesocolon. There was marked atrophy of the muscle walls.

SERVICE OF DR. BAINBRIDGE

Case 7.—Mr. M., aged 36, was always constipated. Colectomy was performed. Tissue examination revealed the ileum pigment free. Pigment was confined to the mucosa of the cecum and hind-gut. There was some atrophy of the muscle walls. As an interesting side light on the toxicity of cecal contents in these cases a cubic centimeter of such, from this case, was injected into the peritoneal cavity of a 250 gm. guinea-pig and caused his death in two hours, the symptoms being those of profound toxemia.

SERVICE OF DR. MEEKER

Case 8.—Mrs. W., aged 42, was troubled with prolonged constipation, etc. Colectomy was performed. Tissue examination revealed profuse pigmentation of the mucosa of the terminal portion of the ileum; also pigment in the solitary follicles and the submucosa.

Three other pigmented intestines are not mentioned in this group because of insufficient clinical data. Of the twelve intestines examined after operation for chronic intestinal stasis, eleven were pigmented. Not including appendixes, we have examined 206 intestinal tissues in our laboratory in the past five years. The foregoing eleven were the only pigmented ones which came to our notice.

COMMENT

It would appear that pigmentation of the hind-gut is a condition dependent on chronic intestinal stasis rather than incident to it. That it is a result, and not a primary contributing cause of obstipation, is indicated by consideration of clinical data in conjunction with histologic findings in tissue obtained both at necropsy and from the operating table. The influence of pigment, after formation, on the normal physiologic function of the hind-gut is, as are most phases of this problem, a matter on which one is compelled to theorize because of inability to establish facts. Physiology of the hind-gut does not brilliantly illumine the pages of standard textbooks. Other than that the hind-gut serves as a connecting link between the small intestine and rectum and that it absorbs to a certain extent, and secretes a watery enzyme-free fluid, there is but little information pertaining to its functions. That both absorptive and secretory functions should bear directly on the degree of obstipation is understood when one takes into consideration their influence on consistency of fecal mass, lubrication of the intestinal mucosa, and effect on bacterial action. It is, of course, impossible to more than conjecture how materially normal functions of the mucosa are retarded by the presence of pigment. A study, however, of the position of many of the pigment cells would indicate that their interference must be a considerable one. So characteristic was the position of the majority of the cells to Solger, that, noting how they followed the peripheral line of vessels, he attributed pigmentation to circulatory disturbances.

If one recalls for a moment the normal histology of the mucosa of the cecum and hind-gut, he will remember that it is roughly as follows: (*a*) a single layer of columnar epithelial cells resting on a basement membrane; (*b*) connective tissue stroma containing central arteries, veins, lymphatic stem and nerves, with fine branches spreading from the central vessels and anastomosing directly beneath the basement membrane; (*c*) muscularis mucosa composed of a thin layer of muscle fibers separating the mucosa from the submucosa. With this histologic picture in mind, it must be conceded that a foreign substance in greater or less abundance when interposed between anastomosing branches of terminal blood vessels and between or in lymph spaces, mechanically at least, interferes with the normal performance of the functions of these parts.

If secretions are diminished there is a coincident loss of moisture to the fecal mass and defective lubrication of the mucous membrane. This has been graphically described by Lynch in his protoscopic picture of a dry mucous membrane covered with sticky fecal masses. If absorption is retarded, fats which would otherwise pass through the intestinal wall remain within the cavity and both promote and accelerate bacterial decomposition. On the other hand, however, with retarded absorption, there would be less fluid withdrawn from the fecal mass, though this might be a feature of small importance, owing to the turbidity of the fecal current and the consequent extended period during which absorption can take place.

In both the pigmented and nonpigmented cecum and adjacent hind-gut, during chronic intestinal stasis, there appears first to occur a congestion and edema of the mucosa, accompanied by congestion manifest in all blood vessels throughout the several intestinal walls. Following this phase, if the condition persists, there occurs a very slow but progressive atrophy not only of the mucosa but of all walls of the intestine. (By this I do not wish to convey the impression that atrophy continues until fibrous tissue ultimately replaces the normal structures. In no tissue which I have studied was there an absence of any of the normal coats of the intestinal wall, even though they had been extensively thinned out.) Not considering senile atrophy, we may presume these changes to be due, first, to an irritation of the mucosa which may be either chemical or mechanical and is probably both. After the preliminary irritation, there begins a gradual overdistention followed by loss of tonicity through constant stretching, and disturbance of circulation from pressure of gut content and compression by gut walls. It is more logical to attribute such changes to the causes mentioned than to suppose them to be due to the presence of pigment in the mucosa, though the possibility of a toxic element derived from pigment is within the bounds of speculation.

CONCLUSIONS

If the foregoing premises are correct, it is possible to draw the following conclusions:

1. In true melanosis of the hind-gut, the pigment is not derived from blood pigment, but is a substance between true melanin and fat pigment.
2. This pigment is probably formed by an enzyme which, manufactured by the intestinal contents, acts on the intercellular substance of the stroma of the intestinal mucosa.
3. Pigment-containing cells are derived from plasma cells of the stroma of the intestinal mucosa.
4. Intestinal pigment is primarily an accompaniment and not a cause of chronic obstipation.
5. The clinical significance of intestinal pigmentation concerns the duration and intensity of obstipation, and, while a contributing influence in established obstipation, is not an initial etiologic factor.

ABSTRACT OF DISCUSSION

Dr. R. A. Lambert, New York: By what method of examination did Dr. Lynch note the disappearance of the pigment in the three cases which he studied?

Dr. Alfred F. Hess, New York: Does the pigmentation occur in children, or only in adults?

Dr. James Ewing, New York: I have encountered pigmentation of the large intestine somewhat frequently and I think that small amounts of this condition are not so uncommon as Dr. McFarland's references to the literature would indicate. I recall one rather pronounced case in a physician who suffered from chronic anemia and long continued obstipation. The entire large intestine was dark brown. He also suffered from a peculiar degeneration of the voluntary muscle system and of the peripheral nervous system, the exact designation of which puzzled our New York neurologists. We interpreted the intestinal condition as the result of the chronic intestinal obstipation and intoxication.

Dr. John W. Draper, New York: I had the pleasure, in connection with Dr. Lynch, of furnishing a part of the tissues from which these studies were made. I know nothing of the origin of the pigment excepting what I have learned from the study of Dr. McFarland's paper. We have observed clinically one important matter—the improvement in the cases operated on has in a general way been proportionate to the amount of pigment present. It may be, therefore, that the presence of the pigment, which in most cases was easily discoverable when the abdomen was opened, may be an index of value for the operating surgeon.

Dr. Jerome M. Lynch, New York: I have been studying this question for five years and am sorry that I can throw but little light on the origin of bowel pigmentation. I have seen a comparatively large number of patients. They are all very toxic, constipated, bleed from the bowel occasionally and have severe periodic headaches. The toxicity is relieved if the bowels are kept open, and the pigment gradually disappears if irrigations are continued over a long period. The pigment varies from an ochre to a black shade and is sometimes divided into rectangular blocks. It is an interesting problem, and I hope that this paper may lead to further study and information on this important subject.

Dr. W. Landrum McFarland, New York: The observations of Dr. Lynch in regard to the disappearance of the pigment were made with the proctoscope. He saw the discolorization of the intestine—the usual picture before the treatment, and the disappearance as the patients were treated—just as you would the fading out of anything that is decolorized. Of course his observations were macroscopic. The youngest case that I have seen on record was that of a person 16 years of age. The worst pigmentations were in persons over 40. The remarks of Dr. Ewing were interesting. The Germans think the condition rare; the Swedes do not. Eight out of the eleven intestines that were sent to me have shown pigmentation, so I do not consider it a rare condition.

WHEN IS CANCER OPERABLE?*

J. WALTER VAUGHAN, M.D.
DETROIT

During the past ten years, my assistants and I have experimented with many various substances in the hope of throwing some light on a better understanding of the cancer problem.

The work[1] first reported contained a brief case report on the use of vaccines prepared from cancer protein, and later publications[2] gave reports of various scientific findings as they were encountered during the progress of this study.

Other workers, notably Blumenthal[3] and Lünchenbein,[4] have reported clinical observations which corresponded to those that I had previously reported. From a scientific standpoint, the work of Gruner[5] agrees with changes I have observed chiefly in advanced malignancy, while of decided corroborative value is the research of Murphy,[6] showing the effect of spleen destruction on the transplantability of tumors.

Indeed, the literature on the subject of malignancy abounds with isolated observations made by many independent investigators which, when taken collectively, all point toward the verification of the conclusions reached by me from my own investigations.

While these investigations have not added much of decided value to the solution of the cancer problem from the standpoint of ultimate control of the disease, yet they have contributed much toward what I might term its intelligent treatment, and they have given us an exact knowledge as to when operative treatment is indicated, as well as to when such treatment will shorten life rather than prolong it.

Obviously it would occupy too much time to give in detail the mass of experimental work that has been done before the facts, on which the following conclusions are based, were elicited. However, these have all been published before, and the references to such publications are appended, so I will occupy the time by a simple statement of the facts, together with a brief report of the conclusions that must be deduced from them.

Metchnikoff, in his classical work on phagocytosis, was the first to show that tissue cells when introduced into the animal body were ingested by the type of large mononuclear leukocyte that is formed in the spleen. At this time, owing to the importance of his observations on the rôle of the polymorphonuclear leukocyte in bacterial infections, but little attention was paid to his observations on the large mononuclear cell, and he himself never associated this cell with any protective function in malignancy.

The next work calling attention to this endothelial blood cell of splenic origin, and the first associating it with the protective apparatus against malignancy, was that performed by my assistants and myself.[7] Altogether we have done over 30,000 differential blood counts and have ascertained that there is invariably an increase in large mononuclear leukocytes following the injection of cancer protein into normal persons or animals.

The percentage of increase is dependent on certain factors, chief among which is the number of body cells with which the protein comes into contact.

Thus a subcutaneous injection is followed by a slight increase, an intravenous injection by a greater increase, and the intraperitoneal method gives a still greater increase.

Another important factor is that the sensitizing dose should not be too large—from 5 to 10 minims of a 0.5 to 1 per cent. solution or suspension of either residue or vaccine is sufficient.

This increase in percentage of large lymphocytes is of short duration, lasting from about four to twenty-four hours. During this time the animal is sensitized to large intravenous doses of the protein; but such sensitization is lost when the increase in large mononuclear cells again recedes.

At the time these observations were first made, I was working under the mistaken impression that this reaction was specific for cancer tissue; but the work of Fischera[8] helped to show this to be untrue.

Fischera was experimenting with fetal autolysate in the treatment of malignancy, and had reported decided clinical benefit in some cases. I immediately started blood counts following injections of fetal autolysate, placental residue, and tissue vaccines from every source, and obtained results of decided interest.

Chief among these was the fact that the more the tissues used reverted to the embryologic type, the greater was the increase in large lymphocytes following its injection. This forced me to the conclusion that we were not dealing with a specific ferment but with a general proteolytic ferment produced by the larger mononuclear leukocytes which is specific only to a limited degree.

This also explained why residues or vaccines made from some forms of malignant tumors gave but a slight increase in large mononuclear cells after injection, while others gave an increase of from 200 to 300 per cent. A careful study of many tumors in this way indicated that the more the tumor reverted to the embryologic type, the greater was the resulting increase.

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

[1] Vaughan, J. W.: Some Modern Ideas of Cancer, The Journal A. M. A., May 7, 1910, p. 1510.

[2] Vaughan, J. W.: Sensitization in Cancer, New York Med. Jour., May 21, 1910; Blood Changes Caused by the Hypodermic Administration of the Cancer Proteid, The Journal A. M. A., Nov. 16, 1912, p. 1764; Cancer Vaccine and Anticancer Globulins as an Aid in the Surgical Treatment of Malignancy, ibid., Oct. 10, 1914, p. 1258. Vaughan, V. C.; Vaughan, V. C., Jr., and Vaughan, J. W.: Proteid Split Products in Relation to Immunity and Disease, Philadelphia, Lea & Febiger.

[3] Blumenthal: Berl. klin. Wchnschr., **59**, 2333.

[4] Lünchenbein: Zur Behandlung maligner Geschwülste, München. med. Wchnschr., Jan. 6, 1914.

[5] Gruner: A Study of the Changes Met With in the Leukocytes in Certain Cases of Malignant Disease, Brit. Jour. Surg., January, 1916, p. 506.

[6] Murphy, J. B., and Norton, J. J.: The Effect of Roentgen Ray on the Resistance to Cancer in Mice, Science, 1915, n. s., **42**, 842; The Lymphocyte as a Factor in the Natural and Induced Resistance to Transplanted Cancer, Proc. Nat. Acad. Sc., 1915.

[7] Vaughan, J. Walter: Surgery of the Spleen, Harper Hosp. Bull., May, 1917.

[8] Fischera: Aktiv. Immunisierung oder histogene Chemotherapie, Ztschr. f. Krebsforsch, 1914, **14**, 566-577.

For this reason it was thought best that a tissue which invariably gave a decided increase when properly prepared should always be used; a residue made from normal placental tissue was found to answer the requirements most satisfactorily.

Consequently we now always use this substance in our tests for the activity of the malignant immune mechanism, unless we have been particularly fortunate in obtaining an extremely malignant sarcoma.

Without going more into detail, it can be quite definitely stated that the immune mechanism in malignancy is a ferment which is formed in the large mononuclear leukocyte. This particular type of blood cell is of splenic origin or arises from similar tissues, notably the hemolymph glands and possibly the bone marrow under certain conditions.

A study of the blood findings in cases of all stages of malignancy was next undertaken. This series comprises over 200 cases ranging from the earliest diagnosable lesion to the most advanced cases, and when added to a survey of 10,000 previous daily counts on patients in all stages of this disease, it furnished some very interesting data.

In general, it may be stated that cases of early malignancy usually show a decided decrease in the total number of polymorphonuclear leukocytes with a corresponding increase in mononuclear cells.

Thus the differential count in early cancer closely resembles that seen in exophthalmic goiter, syphilis and tuberculosis, the percentage of polymorphonuclear cells being frequently much below 60.

When a tumor is growing rapidly, and always after metastasis has taken place, the percentage of polymorphonuclear cells runs above 70, and is usually much higher.

The differential count in early malignancy frequently varies considerably from day to day, and more decided changes are noticed at longer intervals.

When a high percentage of large mononuclear cells is noted for several days in succession, the tumor retrogresses during that period. Conversely, when the count shows a high percentage of polymorphonuclear cells for a continued period, it signifies rapid tumor growth. Indeed, during such periods, the microscopic character of the tumor cells occasionally assumes a more malignant type. This is evidenced in a case in which the first tissue was removed from the thyroid gland when the differential count was: polymorphonuclears, 50 per cent.; large mononuclears, 12 per cent.; small mononuclears, 38 per cent.; eosinophils 0, and the section shows a carcinoma simplex. The second section was taken from the same individual when the count was running: polymorphonuclears, 85 per cent.; large mononuclears, 2 per cent.; small mononuclears, 13 per cent.; eosinophils, 0, and shows what might have been called a spindle cell sarcoma. Such an apparent change in tumor morphology has been observed in four different instances.

The study of this large series of blood counts, besides furnishing the foregoing scientific data, revealed one fact of decided clinical importance, namely, that metastasis does not usually occur until the percentage of polymorphonuclear cells becomes high and remains so. In other words, metastasis does not occur until the immune mechanism has broken down and is no longer capable of being stimulated to renewed function.

Neighboring lymph glands may be slightly involved while the immune mechanism is still intact, but no advanced metastasis can occur during this period.

From this it can be seen that if the first differential leukocyte count in any case of malignancy shows a high large mononuclear count and a low polymorphonuclear count, we can conclude that metastasis has not occurred, and that the case is operable.

If the count shows a high polymorphonuclear and a low mononuclear percentage then we have at our disposal the wherewithal to test whether the immune mechanism has been destroyed or whether it is simply an interval of increased tumor growth. This is ascertained by injecting about 1 c.c. of placental residue intraperitoneally into the patient, and taking daily differential blood counts thereafter.

A twenty-four to forty-eight hour decrease in polymorphonuclear cells signifies that the immune mechanism is still intact and that metastasis has not occurred and therefore that the case is operable. No change, or an increase in polymorphonuclear cells with a corresponding decrease in large cells, shows inoperability because of metastasis. Such patients actually receive harm and their end is hastened by surgical intervention, unless such a procedure is indicated for palliative reasons.

In order to better illustrate this point let me cite two cases that were clinically similar in every respect. They were both cases of gastric carcinoma, apparently of advanced type, and the roentgenologist reported both inoperable.

Case 1 (235).—Carcinoma of stomach. Hemoglobin, 70 per cent. Differential leukocyte count: polymorphonuclears, 75 per cent.; large mononuclears, 6 per cent.; small mononuclears, 18 per cent.; eosinophils, 0; mast cells, 1 per cent.

Injection of placental residue, twenty-four hour count: polymorphonuclears, 82 per cent.; large mononuclears, 3 per cent.; small mononuclears, 15 per cent.

Case 2 (241).—Carcinoma of stomach. Hemoglobin, 40 per cent. Polymorphonuclears, 70 per cent.; large mononuclears, 6 per cent.; small mononuclears, 23 per cent.; eosinophils, 1 per cent.

Injection of placental residue, twenty-four hour count: polymorphonuclears, 59 per cent.; large mononuclears, 15 per cent.; small mononuclears, 25 per cent.; mast cells, 1 per cent.

The test in Case 1 showed that the immune mechanism was destroyed, and therefore the diagnosis of metastasis present was made.

Operation was performed for obstruction, and a posterior gastro-enterostomy was made. At this time, liver metastasis and extensive lymph gland involvement were found, and the postmortem two months later revealed extensive retroperitoneal involvement, both suprarenals being almost destroyed.

Case 2, which clinically appeared much farther advanced owing to the severe secondary anemia, showed a decided decrease in polymorphonuclear cells following injection, and an increase in large lymphocytes. From this the low hemoglobin was attributed to slow hemorrhage, since the test showed the immune mechanism to be intact, and a diagnosis of no metastasis was made. At operation a small growth obstructing the pylorus was found, and a radical operation was performed. No metastasis was observed. The lymph glands of the lesser curvature were decidedly enlarged, but microscopic section of these showed them to be inflammatory and that no metastasis was present.

We have followed the foregoing routine in over 200 cases, and I feel justified from the uniformity of our observations in stating that if the test shows the immune mechanism to be intact, operative treatment is indicated. Conversely, if the test shows the immune mechanism to be destroyed, operation is useless except for palliative reasons.

Again, I believe that operation is best performed when the percentage of large mononuclear cells is high, as metastasis is less liable to occur from the operative handling if the anticancer ferment is active when the operation is performed.

One more word concerning the value of this test: It is a valuable prognostic aid. After complete destruction of the immune mechanism, which may occur occasionally when the initial tumor is small, the progress of the disease is always rapid, and operation in such cases is usually followed by rapid general metastasis, while many cases, apparently far advanced, will respond to stimulation of the immune mechanism. Such patients always live much longer than the physician anticipates, unless he is particularly guarded in his prognosis. It is this class of case, with the alternating periods of retrogression and advancement of growth, that furnishes the fruitful field for the work of the charlatan, since the temporary benefit observed from Nature's efforts is usually attributed to whatever medication is being used at the time.

ABSTRACT OF DISCUSSION

Dr. Henry Schmitz, Chicago: I made the assertion some time ago, and again here in discussing Dr. Levin's paper, that in the study and treatment of carcinoma we should take into consideration the leukocytic and the differential white blood corpuscle count. By these the value or uselessness of different therapeutic measures could be shown. If, for example, following the use of a certain therapeutic measure, there were a decrease in the red and the white blood count, we should wait until the blood returned to normal before making another attempt to treat the patient. If the decrease persists, further treatment would be useless. This is specially true in the radium and roentgen treatment of cancer. Persistence of leukopenia indicates the hopelessness of the treatment. Additional exposures to the rays merely render the patient and the tumor worse. I therefore feel that the observations of Dr. Vaughan are of inestimable value, not only in the determination of operability, and the prognosis of surgical treatment of carcinoma, but also of the palliative treatment. On my return home I shall immediately begin a study of my work from Vaughan's standpoint and see whether I can substantiate his deductions.

Dr. Samuel W. Bandler, New York: I am delighted to hear the word immunity introduced in the study of carcinoma. I believe the preventive study will be along the line of immunity—determining why some of us have it and others do not. It would be interesting also in families to study whether the tendency to carcinoma is a characteristic of more than one member of the family or only of the person who has the disease. I have known histories in which the father has had carcinoma, in which three children have died in infancy; one adult child of that father has tuberculosis; another adult daughter has carcinoma of the stomach at the age of 37; another adult daughter has carcinoma of the colon at the age of 34. Circumstances such as that point absolutely to a lack of resistance in that family, which takes the form of carcinoma in the majority, of tuberculosis in one, and death in infancy or childhood in the others. It would be interesting to see in these cases whether there is a familial change in the blood and in the relation of the cells in other members of the family than the one with carcinoma. I would ask whether Dr. Vaughan has made studies of the same sort in benign tumors of various parts of the body, pointing to immunity in one individual and a lack of it in another. In women who have been pregnant we find in a certain proportion the development of hydatid mole, or an overgrowth of cells which are supposed to atrophy and disappear, showing a lack of protection or resistance in that individual.

Dr. J. Walter Vaughan, Detroit: The only studies we made with benign tumors were in making extracts from the tumors and testing out their power to increase the percentage of large mononuclear cells. The more the tissue cells revert to embryologic type, the higher the increase—from 6 to 10 per cent. I am glad that the point has been brought out that the repeated differential blood count is of the utmost importance and gives us more aid clinically than any other examination.

RELATION OF VITAL CAPACITY OF LUNGS TO CLINICAL CONDITION OF PATIENTS WITH HEART DISEASE *

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In most persons with heart disease, dyspnea is one of the earliest symptoms observed, and the tendency of a patient to become short of breath on exertion bears a close relation to his clinical condition. The physician often asks of his patient, "Do you get short of breath easily?" or "Do you get short of breath more easily than you did formerly?" and thereby indicates that he regards the question of dyspnea as having a direct bearing on the functional state of the heart. An increasing tendency to dyspnea is evidence of a failing cardiac reserve, while the ability to perform a greater amount of exercise without becoming short of breath indicates, in general, an improvement in the efficiency of the heart. In a limited number of patients, palpitation or cardiac pain are the presenting symptoms, and dyspnea does not assume so prominent a rôle, but in a much larger group the onset of respiratory distress is the first symptom which suggests that the subject is approaching the limit of the functional capacity of his heart.

On account of the importance of the tendency to dyspnea as an index of the clinical condition of the patient, we not infrequently attempt to standardize it or describe it in our records, so that we may know more or less accurately whether it is increasing, decreasing or remaining constant. Unless, however, careful observations are made on the patient while he is undergoing graduated exercises, one has little but the patient's own statement to rely on, and such observations concerning subjective symptoms are, of course, apt to be extremely vague and unreliable. It would be of considerable assistance, therefore, if we could devise some objective method of measuring accurately the tendency to dyspnea. The latter it seems possible to do in the determination of the vital capacity of the lungs.

As a result of a study of the various elements which take part in the production of dyspnea in heart disease, it was found that perhaps the most significant feature was the inability to breathe deeply. When a person

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* Read before the Section on Practice of Medicine at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

exerts himself, as by walking or running, the metabolism becomes increased, the oxygen consumption is raised, and in order to meet the need for additional oxygen, the rate and depth of respiration are increased. The normal subject accomplishes this without difficulty, since he can easily breathe many times deeper than he does while he is at rest; but for the patient with severe heart disease, it is quite a different problem, for the amount to which he can increase the depth of his respiration is much restricted. If one measures the vital capacity of the lungs of such a patient, and this is the volume of air which he can expire after the deepest possible inspiration, it will be found to be much below the normal. The importance of this inability to breathe deeply, which manifests itself as a decrease in the vital capacity of the lungs, is shown still further by the fact that there is a close relationship between the degree of the decrease in vital capacity and the degree of the tendency to dyspnea. Observations reported elsewhere on 124 patients[1] and many subsequent observations confirm this fact. If the volume of the vital capacity is expressed in terms of the percentage of normal values determined according to sex and height,[2] it has been found that the following generalizations are approximately true: Cardiac patients with a vital capacity of 90 per cent. or more of the normal standards have no more tendency to dyspnea than is to be found in a similar group of healthy persons. Cardiac patients with a vital capacity of from 70 to 90 per cent. of the normal almost invariably give a history of becoming short of breath on moderate exertion, but most of them can lead a satisfactory although somewhat limited life. Patients with heart disease who have a vital capacity which is only from 40 to 70 per cent. of the normal are much more restricted. Practically all become short of breath easily, and few are able to do even the lightest work. They are borderline cases and frequently become acutely decompensated. Those patients with a vital capacity which is below 40 per cent. of the normal standard are acutely decompensated, usually confined to bed, and are often dyspneic even while at complete rest.

It having been shown that there is a direct relation between a decrease in the vital capacity of the lungs and the clinical condition of cardiac patients even when one compares the vital capacity of the individual case to more or less arbitrarily chosen normal standards, it seemed worth while to find out whether this relation between vital capacity and clinical condition would not be even more striking if frequent observations were made in the same case. In a considerable

TABLE 1.—VITAL CAPACITY DURING PROGRESS OF CARDIAC DISEASE

Case	Date	Vital Capacity		Condition	Remarks
		C.c.	%		
1 Med. No. 6165 Chronic myocarditis Auricular fibrillation	2/20	1,825	65	....	Comfortable while at rest in bed. Lungs clear
	2/21	1,875	66	Stationary	Subjective improvement
	2/24	1,825	65	Stationary	
	2/27	1,800	68	Stationary	
	3/ 1	1,500	53	Worse	Hydrothorax has developed since last observation
	3/ 4	1,600	56	Stationary	Hydrothorax present
	3/ 5	1,500	56	Stationary	Hydrothorax present
	3/12	1,525	56	Stationary	Hydrothorax present
	3/16	1,500	56	Stationary	Hydrothorax present
	4/ 4	1,450	51	Stationary	Hydrothorax present
	4/ 6	1,300	50	Stationary	
	4/10	1,250	44	Worse	Increased dyspnea
	4/19	1,000	35	Worse	Dyspnea and cough
	4/20	1,200	42	Stationary	
	4/23	1,400	50	Improved	Dyspnea has gone; no pulse deficit
	4/30	1,200	42	Stationary	
	5/11	1,400	50	Stationary	
	5/17	1,400	50	Stationary	No change since April 23; still in bed
2 Med. No. 6274 Chronic myocarditis	3/13	1,700	35	....	Badly decompensated anasarca
	3/14	1,900	39	Stationary	
	3/16	1,900	39	Stationary	
	3/19	1,700	35	Stationary	
	3/22	1,900	39	Stationary	
	3/26	2,000	42	Improved	Less edema of legs; less dyspnea
	3/31	1,950	41	Stationary	
	4/ 4	2,050	43	Stationary	
	4/ 6	2,000	42	Stationary	
	4/10	2,300	48	Improved	Less edema of legs; less hydrothorax
	4/17	2,275	47	Improved	Less edema of legs
	4/20	2,200	46	Stationary	
	4/23	2,400	50	Stationary	
	4/27	2,500	52	Stationary	
	4/30	2,400	50	Stationary	
	5/ 2	2,500	52	Stationary	Slow but steady improvement occurred throughout stay in hospital
	5/ 5	2,400	50	Stationary	
	5/ 7	2,400	50	Stationary	
	5/ 9	2,500	52	Stationary	
	5/15	2,500	52	Stationary	
	5/17	2,700	56	Improved	Slight edema of shins; right hydrothorax; out of bed but very much restricted
3 Med. No. 6194 Chronic myocarditis	3/ 5	1,850	46	....	Badly decompensated anasarca
	3/ 7	1,900	48	Stationary	Badly decompensated anasarca
	3/14	2,000	50	Stationary	Badly decompensated anasarca
	3/26	1,600	40	Worse	Badly decompensated anasarca; more dyspnea
	4/ 4	1,800	45	Stationary	Anasarca
	4/10	1,575	39	Worse	Anasarca; more dyspnea
	5/ 5	1,600	40	Stationary	Anasarca
	5/10	1,800	45	Stationary	Anasarca; still in bed
4 Mitral stenosis Tricuspid insufficiency	2/10	2,100	43	....	Enlarged liver; acutely decompensated; anasarca
	2/12	2,150	45	Stationary	
	2/14	3,000	62	Improved	Less ascites; liver less tender
	2/19	3,500	73	Improved	Liver not tender
	2/27	3,100	65	Worse	Slight increased dyspnea; dry cough
	3/ 1	2,575	54	Worse	Increased dyspnea; liver slightly tender; increased ascites
	3/ 3	2,700	56	Stationary	
	3/ 5	2,400	50	Stationary	
	3/ 8	2,200	46	Stationary	No change clinically
	3/12	2,650	55	Improved	Cough stopped and edema is less
	3/16	3,100	64	Stationary	
	3/19	2,750	53	Stationary	
	3/22	2,700	56	Stationary	
	3/26	2,500	32	Stationary	
	3/31	2,800	58	Improved	No dyspnea; less ascites
	4/ 4	3,200	67	Improved	
	4/ 6	3,400	71	Stationary	No ascites; no dyspnea
	4/10	3,100	65	Stationary	
	4/13	3,400	71	Stationary	Left hospital in fair condition
5 Med. No. 6317 Chronic myocarditis	3/23	2,000	41	....	Ascites; hydrothorax; orthopnea
	3/24	1,950	40	Stationary	
	3/26	2,200	46	Improved	No ascites; less dyspnea
	3/31	2,200	46	Improved	Less edema; no hydrothorax
	4/ 4	2,150	45	Stationary	
	4/ 6	2,200	46	Stationary	
	4/10	2,300	48	Stationary	
	4/17	2,500	52	Stationary	
	4/23	2,800	58	Improved	Signs unchanged, but looks better
	4/27	2,700	56	Stationary	
	5/ 2	2,500	52	Stationary	
	5/ 5	2,100	44	Worse	Edema of legs; liver large and tender
	5/ 7	2,300	48	Stationary	
	5/ 9	2,300	48	Stationary	Left hosptal, but gets short of breath very easily

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[1] Peabody and Wentworth: Arch. Int. Med., September, 1917, p. 443.

[2] The normal values for the vital capacity of the lungs are: Males: Height from 159.5 to 173.5 cm., 4,000 c.c.; from 173.5 to 182.5 cm., 4,800 c.c.; 182.5 cm. and above, 5,100 c.c.. Females: Height from 154.5 to 162 cm., 2,825 c.c.; from 162 to 167 cm., 3,050 c.c.; 167 and above, 3,275 c.c.

group of cases, therefore, we have attempted to plot the variations in the vital capacity of the lungs and to compare with these the changes in the clinical condition. Each observation has consisted of a careful clinical examination of the patient, together with the recording of a statement as to whether the examiner considered the patient's general condition to be improved, worse or stationary, and then the determination of the vital capacity of the lungs. Instead of the recording spirometer which was used in the previous observations on the vital capacity of the lungs, in this series of cases we have used an ordinary well-balanced spirometer of 8 liter capacity. The subjects *were told to take as deep an inspiration as possible,* and then to insert the tube to the spirometer into the mouth and give a complete expiration. The volume of the expiration was measured on the spirometer wheel. In a few subjects who were very ill or were for other reasons unable to cooperate, and in a few who were unwilling to cooperate, satisfactory results could not be obtained, but in most instances it proved to be comparatively easy to get records that apparently represented with considerable accuracy the vital capacity of the lungs.

TABLE 2.—EFFECT OF EDEMA ON VITAL CAPACITY

Case	Date	Vital Capacity		Condition	Remarks
		C.c.	%		
6 Med. No. 6229 Mitral stenosis Auricular fibrillation	3/ 3	1,900	47	....	Orthopnea; cyanosis; edema of legs
	3/ 4	1,800	45	Improved	Less edema of legs
	3/ 5	1,900	47	Improved	Less edema and has dyspnea
	3/ 7	2,300	56	Improved	Less dyspnea; less edema of legs
	3/ 9	2,500	62	Improved	Improved; breathing easier
	3/12	2,400	60	Stationary	
	3/16	2,200	55	Stationary	
	3/19	2,400	60	Stationary	
	3/26	2,200	58	Stationary	Some edema of legs; out of bed, but becomes dyspneic on slight exertion

TABLE 3.—EFFECT OF HYDROTHORAX AND ASCITES ON VITAL CAPACITY

Case	Date	Vital Capacity		Condition	Remarks
		C.c.	%		
7 Med. No. 6284 Mitral stenosis Aortic regurgitation	3/15	2,250	44	....	Orthopnea; ascites; large liver; edema of legs
	3/16	2,500	..	Stationary	
	3/19	2,700	53	Improved	Less edema of legs
	3/22	2,500	49	Stationary	
	3/26	2,500	49	Stationary	
	3/31	2,900	57	Improved	Lungs clear; ascites gone; no edema
	4/ 4	2,900	57	Stationary	
	4/ 6	2,900	57	Stationary	
	4/10	2,950	58	Stationary	
	4/14	3,100	61	Stationary	Left hospital in rather poor condition; can walk, but probably unable to do work
8 Med. No. 6114 Chronic myocarditis	2/12	1,510	31	....	Orthopnea; edema of legs; hydrothorax; Cheyne-Stokes respiration
	2/13	1,575	33	Improved	Less dyspnea
	2/15	1,675	35	Improved	Edema gone from legs
	2/16	1,900	40	Improved	Much more comfortable
	2/19	1,800	37	Stationary	
	2/23	1,800	37	Improved	No râles in lungs; no edema of feet
	2/27	2,000	42	Improved	Cough gone
	3/ 1	2,100	45	Stationary	
	3/ 5	1,950	41	Stationary	Nocturnal dyspnea persists; in wheel chair, but condition very poor
9 Med. No. 6335 Chronic myocarditis	3/27	1,200	25	....	Orthopnea; much ascites and edema
	3/31	1,700	35	Improved	Condition improved; no ascites
	4/ 4	2,300	48	Improved	Lies flat without discomfort
	4/ 6	2,000	42	Stationary	
	4/10	2,250	44	Stationary	
	4/14	2,300	48	Stationary	Left the hospital compensated; patient must lead a restricted life
10 Med. No. 6344 Chronic myocarditis	3/26	2,000	50	....	Orthopnea; massive edema; much ascites
	3/31	2,100	53	Improved	Record of vital capacity is unsatisfactory; less ascites
	4/ 4	2,900	73	Improved	No edema of legs; ascites gone
	4/ 6	2,800	70	Improved	Moderate diuresis, no change in clinical condition
	4/10	3,000	75	Stationary	Left the hospital
	4/14	3,000	75	Stationary	
11 (Chart 1) Med. No. 6261 Chronic myocarditis Auricular fibrillation	3/ 9	1,400	42	....	Acutely decompensated; hydrothorax; orthopnea; edema of legs
	3/10	1,475	45	Improved	Less dyspnea but still orthopneic
	3/12	1,800	55	Improved	Less edema; less dyspnea; less hydrothorax
	3/16	2,300	76	Improved	Lungs clear; less dyspnea; hydrothorax gone
	3/19	2,700	82	Stationary	
	3/22	2,775	85	Stationary	
	3/26	2,800	86	Stationary	Left hospital in good condition
12 (Chart 2) Med. No. 6152 Mitral stenosis Auricular fibrillation	2/16	1,150	29	....	Orthopnea; cyanosis; anasarca
	2/17	1,200	30	Worse	Increased edema
	2/19	1,050	26	Stationary	Marked dyspnea; condition bad
	2/23	650	14	Worse	Died
13 Med. No. 6178 Chronic myocarditis Auricular fibrillation	2/20	1,400	29	....	Orthopnea; marked ascites; anasarca
	2/21	2,300	48	Improved	Much less dyspnea; edema unchanged
	2/22	.....	..	....	Abdominal paracentesis
	2/23	2,500	52	Improved	Less dyspnea; still in bed
14 Med. No. 6541 Chronic myocarditis	5/ 5	1,500	38	....	Orthopnea; moderate ascites; moderate edema of legs
	5/ 7	2,150	54	Improved	Less dyspnea; no edema and no ascites
	5/ 9	3,500	88	Improved	No dyspnea
	5/16	3,600	90	Stationary	Out of bed and in good condition

Judgment as to the clinical condition of our patients has been based on the degree of dyspnea, edema, pleural transudate, ascites, pulmonary congestion, acute enlargement of the liver, cyanosis, and pulse rate or pulse deficit. In two cases, of which special mention will be made, precordial pain and cutaneous or muscular hyperesthesia were considered as symptoms of myocardial weakness.

Twenty-four patients with some severe form of cardiac disease have been studied. In five patients in whom the objective evidences of myocardial *insufficiency* were marked, the alterations in clinical condition took place extremely slowly. For this reason it was frequently difficult or even impossible to note any changes in observations made at short *intervals.* It was under these circumstances that the greatest discrepancies between the vital capacity records and our judgment of the progress of the case have occurred. Nevertheless these discrepancies have never been great, and the subsequent course of the case has invariably shown an error in judgment rather than an error in the indications of the vital capacity records. A comparison of our clinical observations as to the progress of the case with the vital capacity findings is given in Table 1.

Diminution in edema of the extremities resulting from rest in bed does not necessarily represent improvement in the functional condition of the myocardium. It may be explained as a static phenomenon resulting from a change from the vertical position assumed in sitting or standing to the horizontal position in bed. On the other hand, edema, while apparently leaving the body, may merely be redistributed, as is sometimes shown by the failure of the patient to lose weight (Table 2).

Two frequent complications of cardiac disease which modify the vital capacity are hydrothorax and ascites. It is to be expected that the vital capacity would increase corresponding to the diminution of the amount of fluid in the pleural or peritoneal cavities. The findings in the patients we have studied in whom either hydrothorax or ascites, alone or combined, were present are given in Table 3.

TABLE 4.—EFFECT OF ANGINOID PAIN OR CUTANEOUS AND MUSCULAR HYPERESTHESIA ON VITAL CAPACITY

Case	Date	Vital Capacity		Condition	Remarks
		C.c.	%		
15 Med. No. 6176 Mitral stenosis	2/21	2,450	80	....	Cyanosis; frequent cough; slight edema; no dyspnea
	3/ 1	2,950	97	Improved	No edema; less cough
	3/ 5	2,200	72	Worse	Precordial pain
	3/ 9	2,700	89	Improved	No pain; left hospital in good condition
16 Med. No. 6480 Mitral stenosis	4/20	2,000	61	....	Dyspnea on exertion; comfortable in bed
	4/27	1,900	60	Stationary	
	4/20	2,400	73	Improved	Subjective improvement
	5/ 2	2,600	80	Stationary	
	5/ 9	2,000	61	Worse	Cutaneous and muscular hyperesthesia
	5/10	2,100	64	....	Hyperesthesia unchanged
	5/14	2,965	91	Improved	Hyperesthesia gone
	5/15	3,000	91	Stationary	
	5/18	3,000	91	Stationary	
	5/25	3,100	94	Stationary	Condition good; walking about the ward
17 Med. No. 6262 Mitral stenosis Aortic insufficiency	3/ 9	1,100	39	....	Orthopnea on slight exertion; moderate edema of legs
	3/10	1,200	42	Improved	Less edema
	3/12	1,375	48	Improved	
	3/16	1,650	58	Stationary	Vital capacity is increased, but no change noted in clinical condition; still in bed
	3/19	1,500	53	Stationary	
	3/22	1,850	65	Improved	Less cyanosis; less dyspnea; no edema
	3/26	1,900	66	Stationary	Gets dyspneic on moderate exertion
18 Med. No. 6293 Chronic myocarditis	4/ 7	1,900	48	....	Acutely decompensated tender, pulsating liver; no dyspnea while in bed
	4/10	2,400	60	Improved	Liver not palpable
19 (Chart 3) Med. No. 6130 Chrone myocarditis Auricular fibrillation	2/13	1,700	42	....	Marked dyspnea; orthopnea; much edema of legs
	2/14	2,175	54	Improved	Less dyspnea; less edema
	2/16	2,800	70	Improved	Less edema; less dyspnea
	2/19	3,200	80	Improved	Less edema; less dyspnea
	2/23	3,150	79	Stationary	
	2/27	2,550	88	Stationary	Less cough
	3/ 1	3,550	88	Improved	
	3/ 5	3,200	80	Stationary	
	3/ 8	3,450	86	Stationary	
	3/12	3,575	89	Stationary	General condition good; walking about the ward
20 Med. No. 6135 Mitral stenosis	2/14	1,200	42	....	Much dyspnea even when at rest
	2/15	1,275	45	Improved	Less dyspnea
	2/17	1,400	49	Improved	Slight edema
	2/18	1,200	42	Worse	More dyspnea
	2/24	1,400	49	Improved	Less dyspnea; comfortable in bed
	2/27	1,475	52	Stationary	
	3/ 1	1,400	49	Stationary	
	3/ 4	1,650	58	Stationary	
	3/ 5	1,575	55	Stationary	Up in chair; dyspnea on slight exertion
21 Med. No. 6191 Mitral stenosis	4/25	1,900	68	....	Dyspnea on exertion, but comfortable in bed
	4/26	1,800	64	Stationary	
	4/27	1,950	69	Stationary	
	4/30	1,950	69	Stationary	
	5/ 2	2,000	71	Stationary	
	5/ 9	2,100	74	Stationary	
	5/15	2,200	77	Improved	Less dyspnea on exertion
	5/18	2,200	77	Stationary	Out of bed; no dyspnea while walking about ward
22 Med. No. 6241 Chronic myocarditis Auricular fibrillation	3/ 4	3,100	78	....	Dyspnea; cyanosis
	3/ 5	3,500	88	Improved	Much better; less dyspnea
	3/ 8	3,500	88	Stationary	
	3/12	3,475	87	Stationary	
	3/16	3,600	90	Stationary	
	3/19	3,500	88	Stationary	
	3/22	3,500	88	Stationary	No dyspnea when walking
23 Med. No. 6273 Chronic myocarditis	3/13	2,475	51	....	Slight edema of shins; dyspnea; cough
	3/14	2,400	50	Stationary	
	3/16	2,300	48	Stationary	
	3/19	2,500	52	Improved	No edema of shins; much cough
	3/22	2,300	48	Stationary	Less cough
	3/26	2,600	54	Stationary	Much cough; râles in both lungs; no noticeable change in condition since entering hospital
24 Med. No. 6399 Mitral stenosis	4/ 7	2,500	63	....	Slight dyspnea at rest; bloody sputum
	4/10	3,100	78	Improved	No dyspnea at rest; no sputum
	4/17	3,400	85	Stationary	
	4/20	3,200	80	Stationary	
	4/23	3,500	88	Stationary	Out of bed
	4/27	3,400	85	Stationary	Condition unchanged
	5/ 5	3,200	80	Stationary	
	5/ 7	2,800	70	Worse	Increased dyspnea
	5/ 9	3,000	75	Stationary	
	5/15	3,100	78	Stationary	
	5/17	3,400	85	Improved, stationary	
	5/23	3,400	85	Stationary	Left hospital in good condition

In six of the eight cases outlined in Table 3 the hydrothorax and ascites disappeared while the patients were under observation. After the disappearance of the pleural and peritoneal fluid, the vital capacity continued to increase to the extent of from 4 to 6 per cent. in three cases, and 10, 12 and 36 per cent. in the other three. The findings indicate that the decrease in the vital capacity in these cases depended in part on the factors other than the hydrothorax and ascites.

Mackenzie has long believed that anginoid pain or cutaneous and muscular hyperesthesia were evidence of myocardial insufficiency. It is interesting to note that with the onset of such symptoms in two otherwise uncomplicated cases of mitral stenosis, the vital capacity dropped markedly, to rise again with the cessation of symptoms. In one of these cases there was a rather sharp anginoid pain over the precordium. In the other case there was marked cutaneous hyperesthesia over the front of the left chest, over the pectoral muscles, and also over the trapezius muscle in the neck. Deep inspiration did not cause pain in either case. The vital capacity findings are given in Table 4.

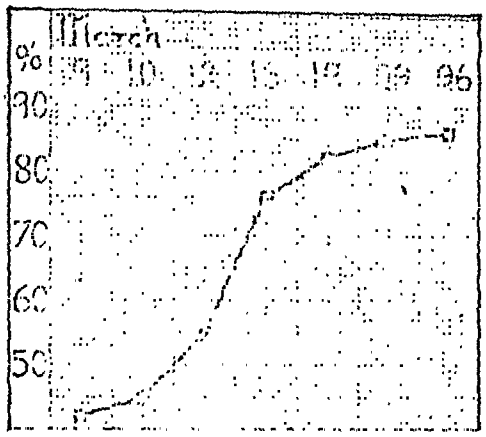

Chart 1—Vital capacity in Case 11.

The vital capacity in a patient with paroxysmal tachycardia was studied during and after an attack. There were no evidences of organic heart disease, and during the paroxysm there were no symptoms referable to the heart. Sixteen hours after the onset of a paroxysm in which the heart rate was 180 per minute, the vital capacity was 58 per cent. Two days late, and twenty-four hours after cessation of the tachycardia, the vital capacity had increased to 83 per cent. A continued rapid rate of the heart in paroxysmal tachycardia is frequently accompanied by marked signs of myocardial insufficiency, but in our case the lowered vital capacity was the only indication of this. The accompanying charts show graphically the changes in the vital capacity in three typical cases (11, 12 and 19). Such charts are excellent objective records of the clinical course which each of the patients has passed through.

REPORT OF THREE TYPICAL CASES

Case 11 (Med. No. 6261).—*Chronic myocarditis, auricular fibrillation, hyperthyroidism.*—Woman, aged 39, white, admitted, March 9, 1917, discharged, March 30, 1917, had had exophthalmic goiter for the last eight years. Six years ago she had a break in cardiac compensation, since which time her feet had been edematous at different periods. On entrance to the Peter Bent Brigham Hospital there were orthopnea, double hydrothorax and considerable edema of the legs. The usual findings of exophthalmic goiter were present. The area of cardiac dulness measured 19 cm. to the left in the fifth interspace and 2 cm. to the right in the fourth interspace. The cardiac action was absolutely irregular. A systolic murmer was audible over the region of the apex of the heart. Blood pressure was 142 mm. systolic and 90 mm. diastolic. The electrocardiographic diagnosis was auricular fibrillation.

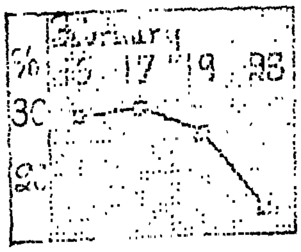

Chart 2.—Vital Capacity in Case 12.

March 10, there was less edema of the legs than was present on admission.

March 12, the edema of the legs had subsided. There was less fluid in the pleural cavities.

March 16, hydrothorax was no longer present.

March 19, 22 and 26, the vital capacity had increased 10 per cent. since March 16. During that time the patient's physical condition had much improved. The pulse rate had diminished from 80 to 90 to from 60 to 70 per minute, and the heart was well compensated.

Case 12 (Med. No. 6152).—*Mitral stenosis and insufficiency, myocardial insufficiency, auricular fibrillation, bronchitis, syphilis.*—Man, aged 53, white, admitted, Feb. 15, 1917, died, Feb. 24, 1917, had been told ten years before that he had a valvular heart disease. During the last four years the patient had had occasionally a little dull precordial pain, and also some dyspnea on unusual exertion, and momentary attacks of vertigo. For several years his memory had been faulty, and he had become definitely irritable in disposition. The present illness began three months before with the symptoms of acute bronchitis and dyspnea, which had grown progressively worse. For the last week before admission to the Peter Bent Brigham Hospital the legs had been swollen. Physical examination showed marked orthopnea, anasarca, and deep cyanosis of the face, lips, ears and fingers. The area of cardiac dulness measured 14 cm. to the left in the fifth interspace and 45 cm. to the right in the fourth interspace. The heart's action was absolutely irregular, and there was a pulse deficit of 38 to the minute. There was a systolic murmur audible over the entire precordium, loudest in the region of the apex of the heart. In the longer pauses between heart beats a short early diastolic murmur was heard at the apex. Blood pressure was 130 mm. systolic and 90 mm. diastolic.

February 17, the patient was slightly worse. There was an increase in the edema of the scrotum, and the patient's cough was more frequent. However, there was less cyanosis than on admission.

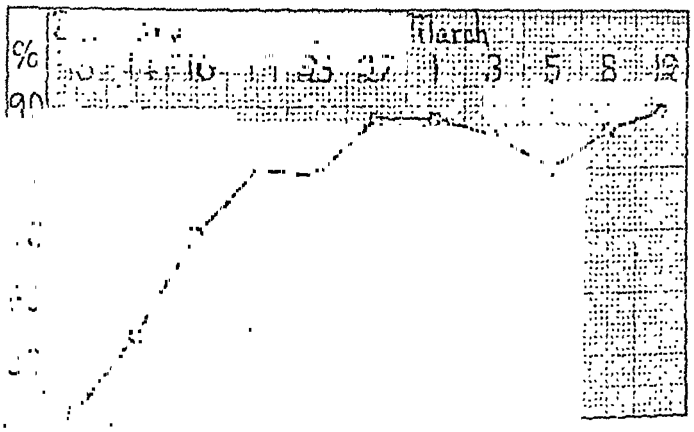

Chart 3—Vital capacity in Case 19.

February 19, the patient's condition was unchanged.

February 23, the patient was decidedly worse. He appeared to be much weaker physically. The cough was more frequent. He died several hours after the last vital capacity record had been obtained.

Case 19 (Med. No. 6130).—*Chronic myocarditis, hypertension, auricular fibrillation, chronic nephritis.*—Man, aged 63, white, admitted, Feb. 12, 1917, discharged, March 13, 1917, had unimportant past medical history. The present illness began ten weeks before admission to the hospital with some generalized weakness, slight dyspnea, and fatigue on exertion. For the last three weeks the patient has been dyspneic. Physical examination revealed that the patient was orthopneic. There was considerable edema of the legs. There were coarse râles throughout both lungs. The area of cardiac dulness measured 16 cm. to the right in the fourth interspace. The heart's action was irregular, and the cardiac sounds were but faintly audible. No murmurs were heard. The aortic second sound was accentuated. Blood pressure was 190 mm. systolic and 90 mm. diastolic. An electrocardiogram showed the condition of auricular fibrillation to be present.

February 13, the patient was orthopneic. There was considerable edema of the feet and legs. Numerous coarse moist râles were present throughout both lungs. There was some cough.

February 14, there was much less edema of the feet and legs. Cough persisted.

February 16, the edema of the feet and legs had almost disappeared. But few râles were present in the lungs. Cough persisted.

February 19, the patient lay comfortably in the prone position. The cough persisted.

No change occurred in the patient's condition until March 1. The cough was much less and there was little sputum.

March 3, 5, 8 and 12, the patient's condition remained stationary.

March 13, the patient was discharged from the hospital able to return to his work as a cabinet maker.

SUMMARY

Attention is called to the importance of a decrease in the vital capacity of the lungs as a factor in the production of dyspnea in heart disease. The degree to which the vital capacity is decreased below certain normal standards corresponds closely to the tendency to dyspnea. Since the tendency to dyspnea depends largely on the functional capacity of the heart, the determination of the vital capacity of the lungs may serve as an indirect measure of the cardiac condition. In a series of twenty-four cases it has been found that the clinical condition of cardiac patients varies closely with the changes in the vital capacity of the lungs. An improvement in the functional state of the heart is associated with a rise in the vital capacity. When the condition of the heart is apparently remaining stationary, changes in the vital capacity are not marked, and when there is evidence of increasing cardiac insufficiency, the vital capacity of the lungs falls. Charts showing the variations in the vital capacity of the lungs of patients with heart disease are frequently satisfactory objective records of the clinical course of the disease, and they may be of distinct aid in prognosis.

ABSTRACT OF DISCUSSION

Dr. Joseph H. Pratt, Boston: Stimulated by Dr. Peabody's work, Dr. Paul D. White and I began a study of the vital capacity in patients at the cardiac clinic at the Massachusetts General Hospital. We have the records now of fifty patients. We find that the vital capacity corresponds closely to the functional condition of the heart as determined by the ordinary methods. Patients who were short of breath after walking slowly on a level for a distance of one or two blocks had usually a vital capacity of 50 per cent. or less. Ambulatory patients rarely have less than 40 per cent. In one case, however, it was 30 per cent. In diagnosis, the test is of great value in distinguishing between true cardiac weakness and those cases of cardiac neurosis that simulate organic disease of the heart. The difficulty in distinguishing between these two conditions is due to the fact that the first symptoms of cardiac weakness are usually subjective. The patient first notices slight breathlessness on exertion, and this may be present in organic heart disease before anything abnormal is found in the physical examination.

The value of the test was shown strikingly in the following case: A man had been treated in the dispensary for a year for myocardial disease. He complained that he was short of breath when he walked on the level a distance of 100 yards. Although nothing abnormal was found on the examination of the heart, the diagnosis had never been disputed. We found that his vital capacity was normal. From careful inquiry I learned that although he claimed to have a feeling of breathlessness while walking, he was able to run up stairs without any discomfort. This showed conclusively that the subjective sensation of which he complained was not due to cardiac weakness. We had mistaken a cardiac neurosis for organic heart disease.

The method is of improtance in determining the functional capacity of the heart in patients who are in bed. Recently I had under observation at one time three patients with mitral stenosis. All gave a history of shortness of breath on slight exertion. In bed they exhibited no signs of cardiac insufficiency. They were able to lie with their heads low; there was no edema, and the pulse in each case was slow. To have tested their cardiac capacity by allowing them to exercise would have been too hazardous. The vital capacity test was made. Two had 40 per cent., the other about 80 per cent. I had previously suspected that there was a large neurotic element in the patient with the high vital capacity. Encouraged by the result of this test she has been taking recently, without discomfort, more exercise than she had for several years. The results of treatment among our ambulatory patients has not been encouraging as measured by the vital capacity test, and in only one case has there been a marked increase in the vital capacity from the use of digitalis, with the patient up and about. In this case, which was one of auricular fibrillation, the increase amounted to 25 per cent.

Dr. T. B. Barringer, Jr., New York: I am able in many ways to confirm the results which Dr. McClure has obtained. In estimating the vital capacity in cardiac patients I have found that it is much lower than in normal persons, and the greater the insufficiency, the lower the vital capacity. In cardiac patients with normal reserve power I have found that the vital capacity is normal. In cardiacs with low reserve power, but no insufficiency, the vital capacity is frequently normal. I have felt that the decrease in vital capacity in cardiac insufficiency was due to the congestion of the lungs which was present. In the treatment of patients by graduated exercises I have found that as the heart's reserve power increases and the clinical condition of the patient improves, the vital capacity goes up. Two years ago I drew attention to a small series of cases in which the average increase of vital capacity during the course of treatment was 25 per cent.

Dr. R. G. Pearce, Cleveland: I have an interesting case which Dr. Hoover and I saw in Lakeside Hospital, in which we estimated the vital capacity of the lungs and the cardiac output by the method proposed by Christianson, Douglas and Haldane, which determines the blood flow through the lungs per minute; that is, cardiac output of the right ventricle. The man had a badly decompensated heart. He had a vital capacity of about 1.2 liters and a cardiac output of 3 liters. After a course of digitalis for three days he had a vital capacity of 1.8 liters and a blood flow per minute of 4 liters. After a week he had 2.4 liters vital capacity and a blood flow of 4.5 liters per minute. The normal man has a cardiac output of 5 or 6 liters per minute. I think this observation is interesting because it checks up cardiac output with vital capacity.

Dr. C. W. McClure, Boston: A study has been made of cardiac patients who were compensated, and it has been found, as I tried to bring out early in the paper, that the vital capacity in patients with cardiac disease who we say are compensated varies in different patients. If the patient can lead a normal life, the vital capacity is almost invariably above 90 per cent. If the patient is able to do a slight amount of work, but must lead a restricted life, the vital capacity will fall almost invariably to somewhere between 70 per cent. and 90 per cent. of the normal. Patients whose vital capacity is less than 70 per cent. are dyspneic on very moderate exertion. The lower the vital capacity, the easier the patient becomes dyspneic, and patients who are down near 40 per cent. are usually decompensated or become decompensated very easily.

A New Method of Cleaning Slides.—The method of cleaning old used slides given below is new so far as the writer knows, and as it is simple, cheap and effective, it seems to merit publication. The only reagent necessary is commercial (household) ammonia used full strength. The slides are soaked in this indefinitely (at least twenty-four hours), when it will be found that they can be rinsed in water and wiped clean. Stained smears of all kinds covered with immersion oil and tissue sections mounted in balsam are all equally well cleaned. The immersion oil need not be removed before soaking, although it is advisable to wipe off the excess. The ammonia may be used repeatedly if kept in a receptacle with a tight cover to prevent loss.—Reuben A. Johnson, M.D., Minneapolis.

SALVARSAN AND NEOSALVARSAN MYELITIS

REPORT OF A FATAL CASE

G. W. McCASKEY, M.D.
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It is not surprising that, when so fatal a disease as syphilis of the central nervous system is attacked with a drug so powerful as arsenic, serious results should now and then occur. The gravity of the disease and its general tendency toward fatality, however, fully justify the risk in view of the beneficial results so commonly observed. Only a few cases of myelitis have been so far recorded, although it is probable that a considerable number of unrecognized cases have occurred or been reported under more general captions. Perhaps the most common neurotoxicologic result of the administration of salvarsan has been a hemorrhagic encephalitis. In some cases this has been verified by necropsy and histologic examination. In some of the cases, however, which clinically looked like encephalitis nothing was found histologically in the central nervous system.

The following reports are brief outlines of the few cases recorded, together with the description of my own case.

Bayet[1] reported the following case:

Case 1.—A man, aged 24, came under treatment for secondary syphilis, three months after the primary lesion. At that time he was given 0.7 gm. of neosalvarsan intravenously. This was well tolerated, although there was a slight general malaise. Ten days later, August 26, he received 0.8 gm., and immediately thereafter developed fever, with a scarlatiniform eruption. There was vomiting for two days. September 1 he was suddenly found paraplegic. There was bladder paralysis with loss of the superficial and deep reflexes, with the single exception of the plantar reflex. There was no Babinski reflex. The spinal fluid was not under increased tension, contained no lymphocytes, and gave a negative Wassermann reaction. This case was not fatal so far as known, but the subsequent history was not followed up.

Socin[2] reported the following case:

Case 2.—A woman, aged 38, suffering from syphilis, but without any involvement of the central nervous system, was given 0.5 gm. of salvarsan, intravenously. No symptoms followed this treatment. Five days later the same dose was repeated. No symptoms were manifested for forty-eight hours, at the end of which time she began to have a slight elevation of temperature and, later in the day, general convulsions followed by vomiting and complete apathy. There was a leukocytosis of 10,000 with 86 per cent. polymorphonuclears. About a month later an extensive decubitus developed. Motor and sensory paralysis of irregular distribution was present. This patient for a little more than a year had all the symptoms of a severe myelitis, and died of an intercurrent pneumonia.

The following case of myelitis, apparently caused by the intravenous injection of neosalvarsan, was reported by Chiari[3]:

Case 3.—Three months after acquiring a genital chancre, a woman, aged 27, appeared at the clinic with symptoms of secondary syphilis. This was June 1, 1912. That day she received 0.7 gm. of neosalvarsan intravenously. June 4 she was given 1.2 gm., and June 7, 1.4 gm. Immediately following the last injection there appeared a scarlatiniform exanthem that lasted nine days. About the same time that the eruption disappeared, vomiting began, lasting a week. June 13, she began to show symptoms of paralysis of the lower extremities, which soon became complete. June 19, a large decubital ulcer developed over the sacrum and later became quite extensive. During this time she developed albumin and casts and blood in the urine. The further history of the case was that of a severe progressive myelitis, of which she died, December 15, six months after beginning the treatment. This patient also had a terminal pneumonia. The anatomic findings were those of an inflammatory process, especially involving the gray matter of the cord, but to a lesser extent the white substance as well.

My own case of myelitis, which, as far as I can determine, is the fourth case reported under that title, presents the following history:

Case 4.—Miss R., aged 40, first consulted me, Dec. 15, 1915. She presented the typical syndrome of tabes dorsalis: the tabetic gait, lightning pains, loss of the knee jerk, and the Argyll Robertson pupil. The blood Wassermann test was negative. The routine blood examination revealed: hemoglobin, 85 per cent; leukocytes, 12,600; polymorphonuclears, 72 per cent.; small lymphocytes, 22; large lymphocytes, 2; transitionals, 4. The spinal fluid was not under very great pressure, but contained excessive globulin, with 16 lymphocytes per cubic centimeter with a + + + Wassermann reaction. The colloidal gold test showed 0000440005. At a later date the gold test was 2120000000. There was no heart involvement, but a mild grade of interstitial nephritis. The urine had a specific gravity of 1.010, with 44 per cent. phenolsulphonephthalein output in two hours and ten minutes. There was neither albumin, nor sugar, nor casts. The digestive functions were normal. There had been a little diplopia at times, but the eyegrounds were normal on ophthalmoscopic examination.

The patient was placed on the Swift-Ellis treatment at intervals of about two weeks, diarsenol being used intravenously and the blood being taken in about twenty minutes, the serum being given intraspinally on the following morning. The patient improved satisfactorily, and, after a couple of months' time, neosalvarsan, being procurable, was used instead of the diarsenol.

Early in May, after five months of Swift-Ellis therapy, the treatment was changed to the simultaneous combined intravenous and intraspinal injection. After the usual dose of neosalvarsan intravenously (about 0.6 to 0.8 gm.), an intraspinal injection was immediately given with the following technic:

A solution of neosalvarsan is made so that each cubic centimeter contains 100 mg. With a finely graduated pipet 0.05 c.c. is measured into a sterile glass representing 5 mg. This is taken up into a Lüer syringe with 5 c.c. of physiologic sodium chlorid solution. Each cubic centimeter represents 1 mg., and it is very easy to retain in the syringe the exact dose desired.

After the preparation of this dilution the lumbar puncture needle was introduced and as much spinal fluid was removed as was desired for laboratory purposes. The syringe was then directly connected with the lumbar puncture needle in situ, and the spinal fluid allowed to run directly into the syringe, diluting the 1 mg. more or less of neosalvarsan up to 5 or 6 c.c., according to circumstances. The contents of the syringe were then immediately reinjected into the spinal canal. This technic of intraspinal injections is still being used, but the dose does not exceed 1 mg., beginning with about 0.5 mg., and is usually not given on the same date as the intravenous injection, to avoid confusion of reactions.

The patient had been given about four of these treatments at intervals of ten days, the dose of neosalvarsan intraspinally being gradually increased up to 1.8 mg. June 16, the same sized dose was given without any marked reaction, although the symptoms were somewhat more severe than usual. Eight days later, precisely the same treatment was repeated. The reaction immediately following the treatment was not unusually severe. The leg and back pains were perhaps slightly more severe than they had been following previous treatments. On the next day she complained that she could not see well, that the legs were weak, and she was unable to void urine. The slight motor and sensory impairment present in the lower extremities gradually increased to complete paralysis. In the course of from four to five days, signs of a decubital ulcer were found over the sacrum, and this gradually became worse. The patient was taken home from the hospital in about a week's time, after which the symptoms remained about the same. A letter from her physician, dated September 18, stated that she had died from exhaustion, the only additional feature of interest being the enormous extent of the trophic ulcers. There were apparently a number of them over the extremities, and one very large one about 6 inches in diameter and circular in form over the sacrum, which the physician said extended down to and actually laid bare the vertebrae. No necropsy could be obtained.

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[1] Bayet: Jour. méd. de Bruxelles, 1912, **17**, 395.

[2] Socin: Cor.-Bl. f. schweiz. Aerzte, Nov. 18, 1916.

[3] Chiari: Abstr., Verhandl. d. deutsch. path. Gesellsch., 1913.

Case 5.—In addition to these cases of salvarsan and neosalvarsan myelitis reported under that title, I have been able to find another undoubted case reported by Wile[4] in discussing the technic of subdural injections. In this case, which was one of ordinary tabes in a man, aged 44, 1 mg. of neosalvarsan was given subdurally, Sept. 24, 1913, the injection being followed for five days by lightning pains and girdle pain. Two weeks later, 2 mg. were given subdurally, and this was followed by lightning pains not so severe as after the first treatment. Ten days later 2 mg. were again given in the same manner. One-half hour after this treatment there appeared extreme pain in the legs followed by urinary retention and paraplegia, and later by decubitus, without doubt the typical picture of acute myelitis. These symptoms grew progressively worse and the patient died, Dec. 5, 1913, about two and one-half months following the treatment. No intravenous injection was given in conjunction with these subdural injections. There seems to be no doubt that this fatal myelitis was due to the subdural injection of 2 mg. of neosalvarsan.

COMMENT

Ravout gave sixty-three subdural treatments of from 4 to 12 mg. of salvarsan in isotonic sodium chlorid solution without ill effect. Wechselmann gave from 0.5 to 3 mg. Wile also gave 3 mg., and I think sometimes considerably more without ill effect.

It is interesting to note that in these five cases of myelitis, with the exception of Wile's case and my own, the medication was intravenous alone. In Wile's case it was intraspinal alone, and in my own case it was intravenous and intraspinal. These cases seem to prove that the myelitis may result alike from the intravenous and the intraspinal medication, and in my own case leaves the question fairly open as to whether the myelitis was the result of one or the other or both.

Socin's case resulted from two doses of salvarsan intravenously, each one containing 0.5 gm., while Chiari's case followed three doses of neosalvarsan of 0.7, 1.2 and 1.4 gm., respectively. Bayet's case followed two doses of 0.7 and 0.8 gm. of neosalvarsan intravenously, eleven days apart, while in my own case at least half a dozen 0.8 gm. doses of neosalvarsan intravenously and from 0.5 to 1.8 mg. intraspinally preceded by several doses of diarsenol with a slightly modified Swift-Ellis technic, had been given.

In Chiari's opinion, these severe degenerative and even destructive effects of salvarsan and neosalvarsan on the central nervous system are due to some abnormal condition of their arsenical content. Obermüller[5] had already collected five instances of arsenical poisoning in which certain definite cord changes had been found. These consisted for the most part of degeneration of the anterior cornua, and of certain fibers in the anterior segments of the cord. There were also occasional hemorrhages into the cord. In Chiari's case of salvarsan myelitis, the histologic changes found in the cord bore a very close resemblance to those described in some of the cases collected by Obermüller; and Chiari, therefore, concludes that in his case of myelitis it was the result of the arsenical content of the salvarsan.

This conclusion may seem too obvious to require confirmation, but such is really not the case. As a matter of fact, we are dealing with very complex molecules of the atoxyl series, which undoubtedly undergo fundamental changes within the blood and tissues, giving rise to many intermediate bodies. These chemical reactions and interactions, quite possibly, if not probably, vary widely in different cases. It is known that some of these compounds are intensely toxic, and the conclusion that the myelitis is the direct result of the arsenic finally separated, for example, from the salvarsan molecule in the course of the retrograde chemical changes, instead of some of these intermediate bodies, has something more than a theoretical interest. It can be fairly assumed that many of the unpleasant and serious reactions following the administration of neosalvarsan are due to some of the intermediate bodies above referred to, of the exact nature of which we are for the most part ignorant. In the course of my own clinical observation, I have seen a considerable number of reactions, such as scarlatiniform eruptions, anuresis, chills and fever, intense headache, back and limb pains, and circulatory and digestive disturbances, which, to say the least, were unpleasant and sometimes positively alarming. Reactions of somewhat milder type are certainly very common after the intravenous method. Whether these milder reactions differ only in degree from the severer ones is difficult to determine. It would seem probable that slight neurotropic, or other transient structural alterations, might occur in various organs, from which recovery might rapidly ensue. It would seem that we are constantly confronted with the remote possibility of a catastrophe, such as a hemorrhagic encephalitis or a myelitis. In view, however, of the enormous number of intravenous injections that have been given, running up as they do into many millions, the probability of such accidents must be exceedingly remote.

Wechselmann[6] is of the opinion that they cannot be explained on purely toxicologic grounds. Clinical observation does, indeed, seem to indicate that the drug alone cannot be wholly responsible for the results. The observation of Querst, for instance, in which eight patients received injections from the same solution, one after the other, the fourth one being fatal, not only proves this but also proves that the fatality was not due to oxidation products caused by standing too long, because the four patients later injected from the same solution remained well.

It does seem, indeed, that there must be something in the chemistry of the patient's body fluids which in some way by its action on salvarsan produces toxic bodies, and it would seem most probable that it is due to some of the abnormally toxic intermediate bodies above referred to. It is, of course, necessary to assume fundamental differences in the chemical bodies found in the organism on one day from those found on another. Such an assumption, however, is plausible enough in the light of well known facts along this line.

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[4] Wile, Udo: Technic of the Intradural Injections of Neosalvarsan in Syphilis of the Nervous System, The Journal A. M. A., July 11, 1914, p. 137.

[5] Obermüller: Ueber Arsenlähmungen: Ein Beitrag zur Beurteilung der Nebenwirkungen des Salvarsan, Berl. klin. Wchnschr., 1913, 50, 966.

[6] Wechselmann: Salvarsan Fatalities, 1913, p. 8.

As Wechselmann points out, the fact that it is not usually the first dose that causes the damage militates strongly against the theory of a primary hypersensitiveness. It seems to me, however, that there still remains the possibility of a sensitization by the first dose somewhat along the lines suggested by this term in a strictly biologic sense, or possibly a very slight initial damage, which makes the tissues more vulnerable to subsequent doses.

Welchselmann's statement that insufficiency of the kidney is the point of the entire question of salvarsan fatalities has in it a ring of finality; but, in spite of his absolute preeminence as an authority on this question, this appears to me to be dogmatic. In his own case of salvarsan fatality, for instance, the patient received only 0.2 gm. It is difficult to believe that the moderate grade of renal insufficiency (which alone would be likely to be overlooked in salvarsan therapy) could cause a larger accumulation of the drug within the nerve centers than would probably occur with perfectly normal kidneys after the administration of doses at least seven or eight times as large, which have been repeatedly given without injury. It is not my intention to pursue the general discussion of the question of salvarsan fatalitities further than to consider its bearings on the question of myelitis. It is interesting to note that in encephalitis hemorrhagica produced by salvarsan, the blood vessels alone seem to be damaged, while the neurons remain intact, this point being confirmed by the careful study of the brain cells by Nissl.

CONCLUSIONS

1. Severe and even fatal myelitis may, though rarely, result from even small doses of salvarsan or neosalvarsan given either intravenously or subdurally.
2. This accident may happen without warning in cases in which the same treatment with identical doses had been well tolerated before.
3. It is not always, if at all, due to faulty manufacture, as the same solution has proved fatal to one and innocuous to others given within the same hour both before and after the fatal dose.
4. Wechselmann's conclusion that renal block furnishes the explanation of salvarsan fatalities seems entirely untenable.
5. The most plausible hypothesis seems to me to be the action of toxic compounds in the form of intermediary bodies with especial affinity for the neurons formed in the retrograde changes which occur in the salvarsan compounds and which may vary in different individuals and in the same individual at different times, and of the exact nature of which we are entirely ignorant.
6. Considering the enormous number of these treatments given, the occurrence of myelitis is so rare that it should be ignored as a negligible possibility.

409 West Main Street.

Autocracy and Democracy.—Autocracy finds its strength in its ability to impose organization by force from the top. The essence of democracy consists in the application of the initiative in its own people. If individualism cannot be so organized as to defend itself, then democracy is a faith which cannot stand. We are seeking to impose no organization from the top. We are asking the American people to organize from the bottom up, and this is the essence of democracy itself.—*Weekly Bulletin.*

EDEMA AS A DANGER SIGNAL IN THE STARVATION TREATMENT OF DIABETES

ALFRED C. CROFTAN, M.D.
CHICAGO

Since the popularization of the starvation method in newspapers and magazines, diabetics who had been carried along comfortably and safely for years have been clamoring for starvation. When their regular physician would not adopt the treatment, pilgrimages were undertaken to institutions that featured this cure.

My personal experience teaches me that in mild cases and cases of medium severity this rigorous plan is quite superfluous, and in certain types of the disease more dangerous than the old established methods. There is this advantage in the method, that the period of protein starvation that inaugurates every tolerance determination is materially shortened. This is not new, or altogether safe; it is advantageous chiefly from the economic standpoint by reducing the length of the hospital period.

As to tolerance, I have never so far seen an increase of the tolerance for carbohydrates in these milder cases follow a starvation cure; in fact, as a rule, I have found the tolerance reduced.

Alarming degrees of excretion of acetone bodies are apt to supervene in this type during starvation, or to follow the resumption of carbohydrate feeding. True, under the management of an expert and in properly equipped hospitals, these symptoms can as a rule be controlled; but, uncontrolled, in cases handled by routine outside, they are liable to become dangerous.

In very severe cases of acute onset, and in fulminating diabetes in children and adolescents, the method is of use as an emergency measure, the sugar often disappearing with startling rapidity, as rapidly as it generally disappears under a properly conducted oatmeal treatment. I regret to report that I have not, however, witnessed more favorable permanent results after starvation than after oatmeal, and the treatment is decidedly more uncomfortable, both to the patient and to the physician.

In view of the fact that starvation is generally employed outside of institutions and under the management of general practitioners who have neither the time nor the facilities, nor possibly the technical training, to control by daily chemical tests the effect of this strenuous method on the general metabolism of the patients, any clinical sign that is easy of recognition should be of value, especially if it constitutes a warning signal of impending danger from continuation of the routine.

Such a sign is edema occurring in the course of a starvation treatment, a sign that I have had occasion to observe frequently, that I have learned to regard with considerable trepidation, and that I do not find mentioned in the literature, the only reference to it that has come to my notice being a verbal acknowledgment of its occurrence by Woodyatt in the course of a discussion of starvation before the Chicago Society of Internal Medicine. Its occurrence in the course of oatmeal cures is mentioned by von Noorden.

Edema usually occurs suddenly, and is associated with an increase of excretion of the acetone bodies, a reduction in urination, and either a cessation of the weight reduction or even an increase in the weight, despite the withholding of food. On the administration of even small amounts of carbohydrate, the edema rapidly disappears, and diuresis is promptly increased without, however, a degree of glycosuria corresponding to the increased urination.

In diabetics, generally, fed on carbohydrates up to or slightly below their tolerance, that is, in diabetics kept free from hyperglycemia and glycosuria, edema is very rare; in fact, diabetics suffering from complicating cardiac or renal lesions in which one would expect edema are generally conspicuously free from the latter.

In hunger, on the other hand, even in nondiabetic subjects, the urinary output generally is below normal in comparison to the liquid intake; hence starving patients not infrequently show no loss of weight for prolonged periods, and occasionally even gain weight. This, of course, can be due only to water retention, and is probably attributable to the retention of the water generated in starvation from the increased forced metabolism of the protein and fats, and from the liberation of water from the shrinking body tissues. No doubt the organism retains this water to maintain a degree of osmotic equilibrium compatible with cell life.

Edema, or its concomitant phenomenon, gain of weight, despite complete withdrawal of food and reduction of liquids, is a starvation phenomenon indicating forced catabolism of body tissues beyond the limits of safety; a degree of tissue destruction that constitutes the main element of danger in the severe types of diabetics, that rarely occurs spontaneously in the milder types of the disorder, and that a rational therapeutist should attempt by all means to prevent and to counteract.

"Pancreatic rest," postulated by Allen, is certainly not favored under these conditions; for nothing presumably can impose a greater strain on the hypothetic internal function of the pancreas than the disassimilation of products derived from forced tissue catabolism.

Edema occurring in starvation cures is a sign, therefore, to resume feeding; it is a danger signal that, if neglected, and especially if associated with nausea, severe headache and tremors, in my experience, invariably either leads to most alarming coma or, if this is prevented by large doses of sodium bicarbonate, leaves the patient, as far as his tolerance is concerned, in much worse condition than before the starvation plan was inaugurated.

Edema during "starvation" can be prevented by the administration of pancreatized oatmeal-alcohol-glycerin clysmata; I have found that they do *not* interfere with the rapid sugar reduction, that they prevent the enormous formation of acetone bodies and materially contribute to the comfort of the patient.

25 East Washington Street.

Lister and Vivisection.—Lister carried out his experiments at abattoirs and in his own home on various animals either after they were dead or when they were chloroformed, or, in the case of the frog, when it had been deprived of sensation by being "pithed." Sheep, horses, oxen, rabbits, cats, bats and frogs were the subjects of his experiments, but not in any great numbers as the somewhat formidable catalogue seems to show. Of the edible animals far more were killed during his lifetime for his consumption than by his experiments, and in the former case by men much less gentle in their feelings for animals than he. Without these experiments he would never have been led to his discoveries. Vivisection, he averred before the Royal Commission on vivisection which sat in 1876, had been essential to him.—Wrench, G. T.: Lord Lister, His Life and Work.

HAS THE NEW-BORN CHILD WITH SUTURED CORD A BETTER START IN LIFE?*

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AND
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This report is based on the study of 450 babies born at the City Hospital between March, 1916, and April, 1917. In half of these babies the cord was amputated by the suture ligature method of Dickinson; in the other half, the cord was ligated with two tape ligatures, one of which was placed near the skin margin of the umbilicus. No antiseptics were used in either case except a single application of alcohol to the skin margin in the amputated cases. Dry sterile gauze was placed over the umbilicus and left unchanged until the suture was removed or the cord came off, unless the dressing was accidently soiled. All the babies were cared for by the intern staff of the hospital, supervised in a general way by the senior physician in the obstetric division. The nursing care and records were in charge of Miss Pommel, who has been head nurse of the obstetric division for a number of years. We omitted from both series of cases all premature babies weighing less than 2,000 gm., all operative deliveries and all babies having a serious pathologic condition not associated with umbilical wound healing. In this way we dealt only with normal babies, and eliminated as nearly as possible all differences between the two series, except the manner of treating the umbilical cord. After we had tabulated the results in about 200 cases of each series, we found that additional cases made practically no change in the course of the weight curves, temperature percentages, etc., in the two series, as the mere multiplication of the same experiment could not materially have changed results.

The figure of eight suture[1] was placed 2 mm. within the skin margin of the umbilicus, sweeping around to avoid puncturing the vessels. A moderately fine silk was used for suture material and the suture, if not found clinging to the gauze on the third or fourth day, was cut and removed. In a few instances, through neglect, the suture was not taken out until the seventh or eighth day; there were, however, no apparent untoward symptoms. We have no doubt that the results with the suture method would have been somewhat improved if done only by the resident in charge of the obstetric department. This, however, was impracticable, and would have defeated the main purpose of this inquiry, which was to determine whether or not this method was sufficiently simple to be embodied as part of the hospital routine.

Our personal impressions of the Dickinson suture were favorable. Beyond an occasional slight temporary oozing from the skin stitch there were no complications. A single case of moderate bleeding after six hours occurred in a baby on whom the intern had taken the stitch at the margin of the skin instead of through the skin cuff itself. This was clearly due to faulty technic and not to the method itself. On the other hand, with the ligation method we had moderate hemorrhage in two instances, requiring secondary ligation.

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

[1] For a detailed description of the suture ligature method of Dickinson, we would refer the reader to the Transactions of the American Gynecological Society of 1916.

Since the majority of the mothers left the hospital from the eleventh to the fourteenth day and could not readily be followed up, we have but little to say regarding the effect of the suture method on the prevention of umbilical hernia. It is difficult to see how such hernias can be prevented unless the entire skin cuff is removed and the suture made to include the abdominal fascia. This must of necessity be a dangerous and unwarrantable procedure. The only case of umbilical hernia that occurred as far as we could ascertain among this series of 450 babies was in a child whose cord had been amputated by the Dickinson suture. The hernia occurred one month after birth, and was about the size of a twenty-five cent piece.

No deaths from infection of the umbilicus occurred in either group. In fact, under modern conditions in a well-regulated maternity institution, such a death rate can practically be eliminated by due asepsis, irrespective of the special technic employed in handling the cord. Minor infections, however, are still to be reckoned with, and we should not be satisfied until we have, as Adair puts it, "reduced them to an irreducible minimum." Adair's interesting bacteriologic studies of the umbilicus at birth are deserving of amplification and corroboration. According to him, the presence of pathogenic germs does not predispose to infection of the umbilicus. We think the question may fairly be raised whether the child at birth does not possess an inherited immunity against infection by organisms whose habitat is the mother's vulva or vagina. The real danger of infection arises from the hands of the accoucheur or nurse and the instruments and dressings used in the care of the umbilicus. This might very well explain the apparent inconsistency in Adair's bacteriologic findings.

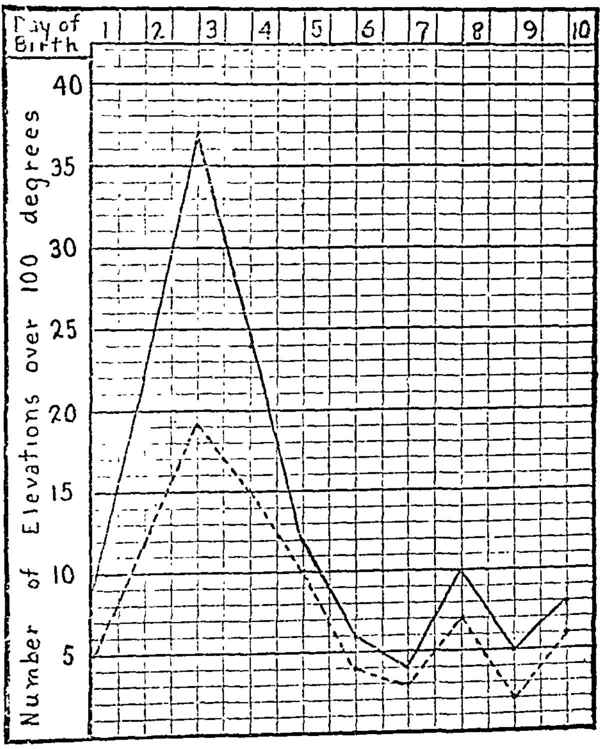

Chart 1.—Temperature elevations over 100 F.: solid line, sutured patients; broken line, ligated patients.

The most striking difference in our two series relates to temperature conditions. Of course we realize that there are other causes for a slight fever in the first ten days besides an umbilical infection, but these other causes should have been equally distributed in the two series, so that a marked difference between the two certainly has significance. We found that in the 225 sutured babies, eighty-five, or 37.7 per cent., developed at some time within the first ten days a temperature of 100 F. or more, whereas the ligated babies showed only fifty-one, or 22.7 per cent., with fever of 100 F. or more. The latter figures correspond exactly with Adair's results in 186 ligated cases with temperature elevations of 100+ F. in forty-two, or 22.58 per cent. When analyzed according to the days after birth we found the interesting comparison given in Table 1.

TABLE 1.—TEMPERATURE CONDITIONS

Day	Sutured Patients		Ligated Patients	
	Over 99 F.	Over 100 F.	Over 99 F.	Over 100 F.
First	33	9	15	5
Second	56	22	38	12
Third	63	37	38	19
Fourth	50	24	42	15
Fifth	27	12	26	10
Sixth	27	6	11	4
Seventh	27	4	18	3
Eighth	30	10	30	7
Ninth	30	5	27	2
Tenth	41	8	29	6

In both series the highest number of temperature elevations was recorded on the third and fourth days, and these were decidedly more frequent among the sutured patients. When, therefore, the suture method is applied by the average intern in the hospital, there is a somewhat greater likelihood of mild infections resulting therefrom than when simple ligation is employed. Doubtless this depends largely on the fact referred to by both Cullen and Dickinson that the cord has no capillaries, while the skin penetrated by the suture does possess such capillaries capable of absorbing infectious material. That these infections were not of serious consequence is seen by the fact that the average loss of body weight from the first to the tenth day in the eighty-five febrile sutured cases was 75 gm., whereas the average loss of the whole series of 225 was 68 gm.

As to disturbance of wound healing as evidenced by a watery odorous discharge, granulomas or prolonged attachment of the cord, we find distinct advantages in favor of the suture method. In twenty-seven instances of the suture method there was a slight tinge of bloody discharge from the umbilicus between the seventh and eleventh days, but never any odorous or free discharge. In the series of ligated babies, thirty-eight presented a bloody or moist discharge between the seventh and eleventh days. This discharge was much more pronounced than in the sutured babies. In five patients there was redness and odor as a result of umbilical necrosis and infection. Four developed granulomas that bled up to the thirteenth day. In forty instances the cord did not come off until between the tenth and thirteenth days. In one of these the baby left the hospital on the eleventh day with the cord still attached. The average length of time elapsing after birth until the separation of the cord was seven and seven-tenth days, which is about what Adair found in his series. Thus in about one third of the patients ligated we have an incompletely healed umbilicus at about the ninth or tenth day, at a time when in most boy babies we would naturally wish to proceed with a circumcision. We think it cannot be gainsaid that the rapid and complete healing of the umbilical wound by the suture method is a distinct advantage in those cases in which a circumcision is contemplated.

The most important index, however, of the effect of the suture method on the general well-being of the child is the weight curve. In this connection we have thought it worth while not merely to figure out the maximum weight loss of the child, as Adair and other writers have done, but, at the expense of considerable time, actually to plot out in these two series of 225 cases the weight curves for the first ten days. This shows some interesting results, as seen in Chart 2. The average initial weight of the sutured babies was slightly in excess of the ligated babies. The initial drop for the first three days was greater in the sutured babies and persisted for one day longer. From the sixth day on, however, the tables were turned and the sutured babies began to gain more rapidly than the ligated ones. The actual figures were those given in Table 2.

The interpretation of these variations that naturally suggests itself is that the sutured babies are to a certain degree unfavorably affected during the first four or five days as a result of the surgical removal of the cord, but that when at the end of that time the umbilicus has fully healed, these children gain more rapidly than the babies with ligated cord. Unfortunately a considerable percentage of mothers were compelled to leave the hospital after ten days, so that records were incomplete for the following days. While it is unsafe to rely solely on impressions, we believe that the gain of the sutured over the ligated babies from the sixth to the tenth days persisted during the following week. In other words, although suturing the cord at the outset is an increased tax on the strength of the newborn child, after the immediate effects are worn off the more rapid wound healing of the sutured navel brings about a gain in weight proportionately greater than in the child with ligated cord.

TABLE 2.—WEIGHT CURVES

Day	Ligated Cord		Sutured Cord	
	Weight, Gm.	Change	Weight, Gm.	Change
First.......	3,204	.....	3,165	.....
Second.....	3,079	—125	3,038	—127
Third......	2,987	— 92	2,960	— 78
Fourth.....	2,980	— 7	2,979	+ 19
Fifth......	3,004	+ 24	3,014	+ 35
Sixth......	3,036	+ 32	3,049	+ 35
Seventh....	3,073	+ 37	3,074	+ 25
Eighth.....	3,102	+ 29	3,094	+ 20
Ninth......	3,107	+ 5	3,108	+ 14
Tenth......	3,136	+ 29	3,124	+ 16

No discussion of the suture method is complete without considering the important saving in the time and responsibility of the nurse in charge. Dickinson speaks of the enthusiasm of the nurses in the maternity division for this method. Our experience was similar. Miss Pommel and her associates at the City Hospital repeatedly expressed their delight over the simplified nursing under this method of handling the cord. Many hours can be saved thereby in the course of each month, hours that can be better employed in other ways, for the care of the mother and the child.

SUMMARY

1. We believe that the suture-ligature method will not greatly decrease the number of umbilical infections. The essential thing is asepsis; and if that is lacking, whether the cord is amputated or ligated is of secondary importance.

2. Umbilical hernias cannot be prevented by this method.

3. The greater immediate loss of weight and greater frequency of slight elevations of temperature after suturing emphasizes the initial shock and the necessity of restricting this method to maternity divisions under the direction of persons of obstetric experience.

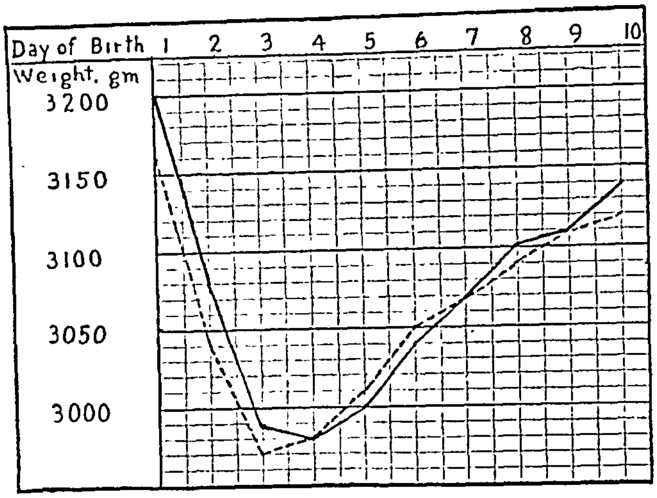

Chart 2.—Weight curve: solid line, sutured patients; broken line, ligated patients.

4. The more rapid gain of the sutured baby after the fifth day shows that the slow healing of the umbilical wound by the ligation method is to some degree a drain on the well-being of the child.

5. The time saved by the nurses when the cord is amputated is considerable, and is of economic importance in the management of hospitals.

6. We therefore urge the adoption of the Dickinson method of treating the cord in all maternity institutions under due precautions. We could find no valid objections to its use; on the contrary, it has certain definite advantages which, though not great, should make it the preferred technic in the treatment of the cord at birth.

ABSTRACT OF DISCUSSION

Dr. George M. Boyd, Philadelphia: Dr. Dickinson's method of ligation of the cord has, undoubtedly, certain advantages. The essayist has shown us, however, that in a certain proportion of cases infection followed. He also shows by his chart that there was a greater elevation of temperature in the first week of the puerperium. We have, therefore, these two factors to consider — the greater elevation of temperature, and the fact that the method will not eliminate infection to as great a degree as I had hoped when I first read Dr. Dickinson's paper.

Obstetric work is emergency work, to a certain degree, and it will always be. While, in the hands of those who are practicing obstetrics as a specialty, this method of treatment of the cord may be carried out in many cases to advantage, since the length of labor, time of delivery, and the presence of the obstetrician are uncertain, the older method of ligation, I think, must still be taught. I should feel, then, that while this method has certain advantages, the older method must still have a field of usefulness.

Dr. Charles S. Bacon, Chicago: I have not practiced this method, but have for a number of years tied the cord right at the junction of the skin and have found that very satisfactory. It obviates the difficulties that are encountered when the cord is tied half an inch or more away from the skin. There is practically no more trouble in the dressing of the cord thus tied than if the cord were not there. The only thing I do is to pour alcohol over the site at the regular dressing of the baby. I have seen no trouble at all. Therefore, the advantage mentioned by Dr. Taussig in the economy of the dressing would not apply to the cases as I manage them.

Dr. Asa B. Davis, New York: I have not practiced this method of suturing the umbilical stump. In our hospital service we ligate the cord about 1 inch from the abdominal wall. Dr. Taussig calls attention to the fact that infants do not gain until the umbilicus ceases to granulate and is well started towards healing. We can confirm this by many cases of minor degree, and also in a few exaggerated cases of the so-called "carneous stump," sometimes from one-half to three-quarters of an inch above the level of the abdominal wall. A tedious process of healing follows, aided by cutting away granulations with silver nitrate. During this time the infant is either at a standstill or retrograding. I believe that a very large percentage of digestive troubles, green stools, fever, and jaundice in infants during the first ten days is due to some grade of infection at the umbilicus. This method of treating the umbilicus may be valuable in the hands of trained surgeons in obstetric hospital service. Its general use, sometimes by unskilled and not surgically clean operators, must lead to many fatal results.

Dr. F. J. Taussig, St. Louis: I feel that the method is not one which will become popular. It must be limited largely to maternity institutions under the guidance of expert hands. In such institutions I believe it has considerable value as a time saving procedure, and in limiting those rare but serious epidemic infections that occasionally prevail in all maternities.

THE REPAIR OF CLEFT PALATE

A TECHNIC AND THE REASONS FOR IT *

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SAN FRANCISCO

Cleft palate, a pure deformity, has no pathology. Its incidence and the part heredity plays in its production have long been studied by Mr. William F. Blades of the Eugenics Record Office, but no deductions can be drawn from the data as yet collected; so we must pass by this interesting phase of the condition, as well as its anatomic complex.

The description of a method for the repair of a cleft palate will be limited to the single sided complete cleft. This is the most common lesion. All technical details applied to it are also applicable to other varieties of the deformity without special indication.

The time at which to operate is of initial importance. I wait until the child has passed the first three or four months of life and has established a satisfactory state of health. I advocate and practice operating before the eruption of any teeth. The infant's mouth at this time is not a too septic place, and sepsis is the greatest obstacle with which we have to contend. This is, of course, long before the incidence of infection of the tonsils or of the pharyngeal adenoid tissue, and also long before the child learns to speak or to attempt any imitation of the voice sounds he hears. It results that we come to the beginning of the work when the child weighs about 15 pounds.

The first step is to narrow the cleft by elastic compression. Commonly the halves of the uvula may be seen to be close together or even touching, separating, however, when the child opens the mouth, in front and at the back, to cry. The widest part of the cleft is at the front, and the intermaxillary bone projects well in advance of the maxilla on the opposite side of the cleft (Fig. 2). I deprecate measures which perforate the maxillae for the passage of wires to draw the bones together, chiefly because of the possible interference with budding teeth, and the danger of a sequent sepsis. It is possible to draw the bones materially together — so as to make the intermaxillary overlap the maxilla — by elastic band traction, pulling on hooks of the hook and eye variety, fastened in adhesive plaster which is stuck on the child's cheeks (Fig. 1). When the child is quiet, the elastic is steadily drawing the bones together, and its effect is much enhanced when the child laughs or cries. The anterior and middle parts of the cleft are definitely narrowed by this means, as can be seen in the improvement in the appearance of the nose, the flattened nostril and tense ala being deepened and relaxed. As soon as the ends of the broken alveolar arch overlap, the child is ready for the operation on the sofe palate.

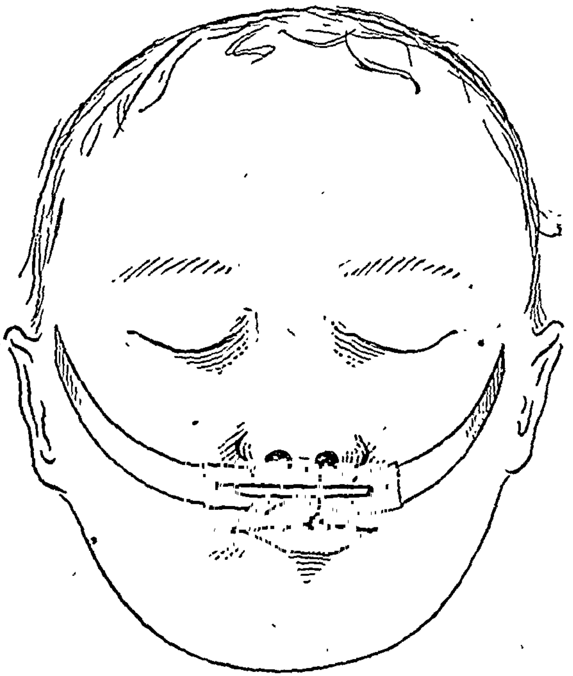

Fig. 1.—Detail of adhesive plaster and hook and elastic compression of the maxillae narrowing the cleft. Note that the inner end of the plaster is put on the cheek outside of the side of the nose and that the posterior end runs up as high as the top of the ear.

All operators today are practically using the Langenbeck or the Lane method of closing the soft palate. The former, recognizing that the cleft represents a failure of union, attempts to correct that fault by putting the parts in union with the least disturbance of tissues. The Lane method splits the velum between its pharyngeal and buccal sides, and turns flaps over from one side to the other. This necessarily jeopardizes the palatal muscles in the splitting, and results in extensive scarring in healing.

The Langenbeck method can be so done as to disturb the muscles individually not at all, though they are, as a group, moved toward the middle line. The statement that the Langenbeck method is inadequate in a wide cleft with a flat palatal arch does not apply to the velum; therefore the Langenbeck is the method I use.

Now, instead of paring the sides of the cleft to get raw surfaces for union, I split them from the attachment of the velum to the tips of the uvular halves. I now suture the posterior edges of the split uvular

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* Read before the Section on Surgery, General and Abdominal, at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

halves together, tying the knots in the pharynx (Fig. 2), and follow by uniting the anterior edges, tying the knots in the mouth (Fig. 3). By this plan I avoid sacrificing any tissue, and if secondary or other sutures are needed, I have all of the original tissue up to the very end. Again, I get broader surfaces of contact for union, though this seems, in failing cases, to be a matter of doubtful value. Finally, I can plan the sutures so as to avoid strangulation of any part of the uvula; and this is a matter of importance, for a shrunken uvula materially limits the palate's usefulness in phonation and deglutition. The plan of splitting the uvula and velum I think originated with the late Hugh Alexander Ferguson of Chicago.

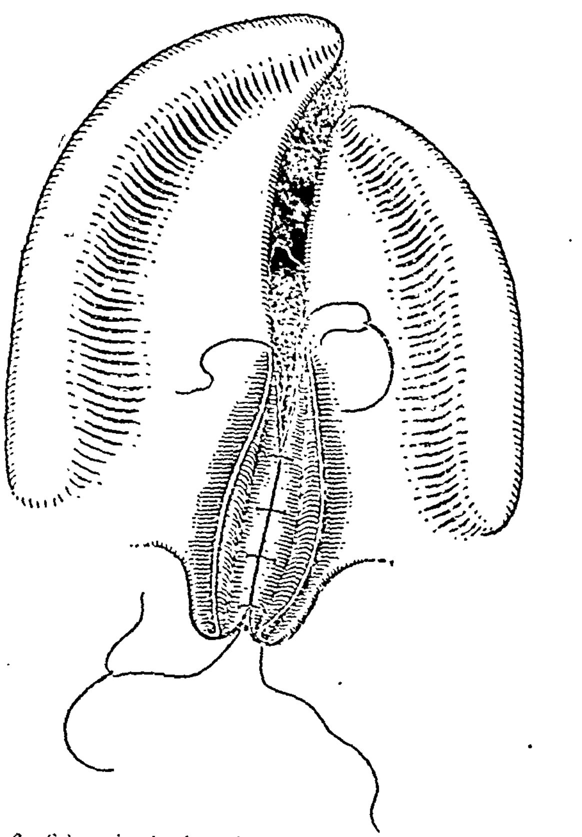

Fig. 2.—Schematic showing of the projection of the intermaxillary bone beyond the maxilla. The margins of the soft palate have been split along their contiguous edges. The posterior flaps are drawn together by sutures which are tied on their pharyngeal surface.

This double pharyngeal and buccal suture line is necessarily stopped at the edge of the hard palate; anterior to that point I use only a buccal suture, and I mattress it. By this means I turn down the edge of each side into the mouth, get broader surfaces of contact for union, and thicker tissue after healing where formerly it was too thin (Fig. 3). I do not attempt to come farther forward by this plan than half the length of the hard palate. This leaves me plenty of tissue in front for the blood supply. I make, on each side, lateral incisions, keeping them outside the posterior palatine foramina and carrying the posterior ends well back. This lets me lift up the whole of the soft palate and move it toward the middle, and to do the same with the mucoperiosteum of the posterior half of the hard palate (Fig. 3). Now around these two flaps, mobilized and approximated and sutured, I pass a piece of ordinary tape, saturated in Moorhof-Mosetig bone wax. This is caught by a stitch, at both the front and the back, on each side, and is so sutured that it acts as a relaxation suture; as it is somewhat stiff, it is also a sort of splint, and immobilizes the soft tissues involved (Fig. 4). The part where my repaired palates begin to break down is at the junction of the hard and the soft palates. Here the strain seems to be greatest or the circulation poorest. In the bight of my tape the flaps cannot pull apart, the mattress sutures are not torn out, and union must occur. Finally, for purposes of cleanliness, I pack the lateral incisions with iodoform gauze.

The tape is left undisturbed for from ten or twelve to fourteen days; the gauze packings are changed daily until the incisions heal so much that they will not hold the gauze.

Union now gives us a palate with a somewhat shortened uvula, and this is usually destined to become still shorter as contraction of the scar tissue occurs. I have never seen a normally long velum after the operation, but I have seen them very nearly normally long, and with an active musculature, showing that I had not spoiled the nerve supply.

During this period the cheeks and the maxillae are held by the elastic traction. and I now repair the lip so that it shall remodel the alveolar processes and make an approximately normal alveolar arch. I shall not impose on any one the way in which I repair the lip. It is something in accordance with a method I once saw practiced by Charles H. Mayo. Each man must find out the way in which he can do this dainty bit of work best, and follow that way.

In the front of the mouth the mucosa is tightly applied to the bone, and the material for any sliding plastic is lacking. Here is, however, a perfect place for a Lane flap, not made so big as to open and ruin tooth follicles, but broad enough to bridge the cleft

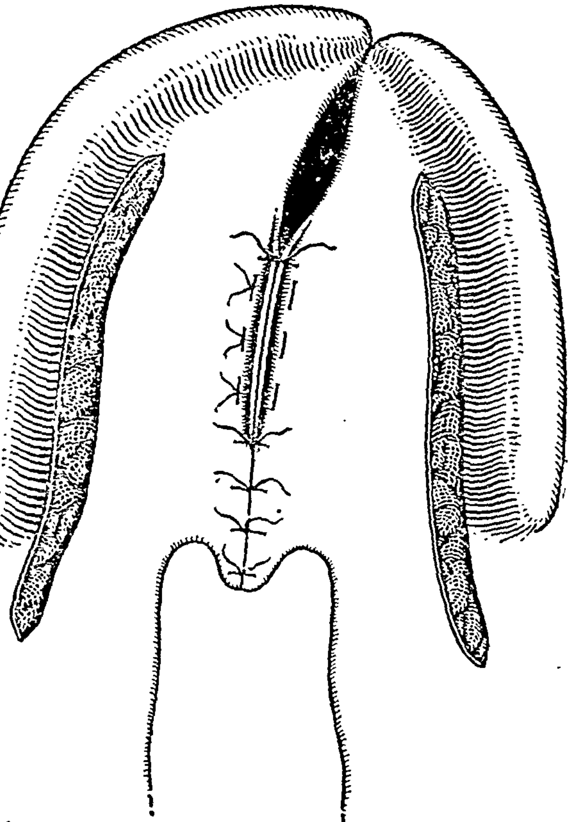

Fig. 3.—The anterior flaps of the split soft palate and uvula have been sutured in the mouth. The mucoperiosteum of the posterior half of the hard palate has been mobilized by the lateral incision and by being separated from the bone, and the edges united by mattress sutures closing the cleft. The lateral incisions are stuffed with iodoform gauze.

and long enough to close the whole length of the cleft left open. I take the flap from the wider side and pocket it under the mucosa of the narrower side. It is quite competent to do this to just behind the teeth and to leave no opening, a condition which is most annoying, as it readily permits leakage of fluid into the nose (Figs. 5 and 6).

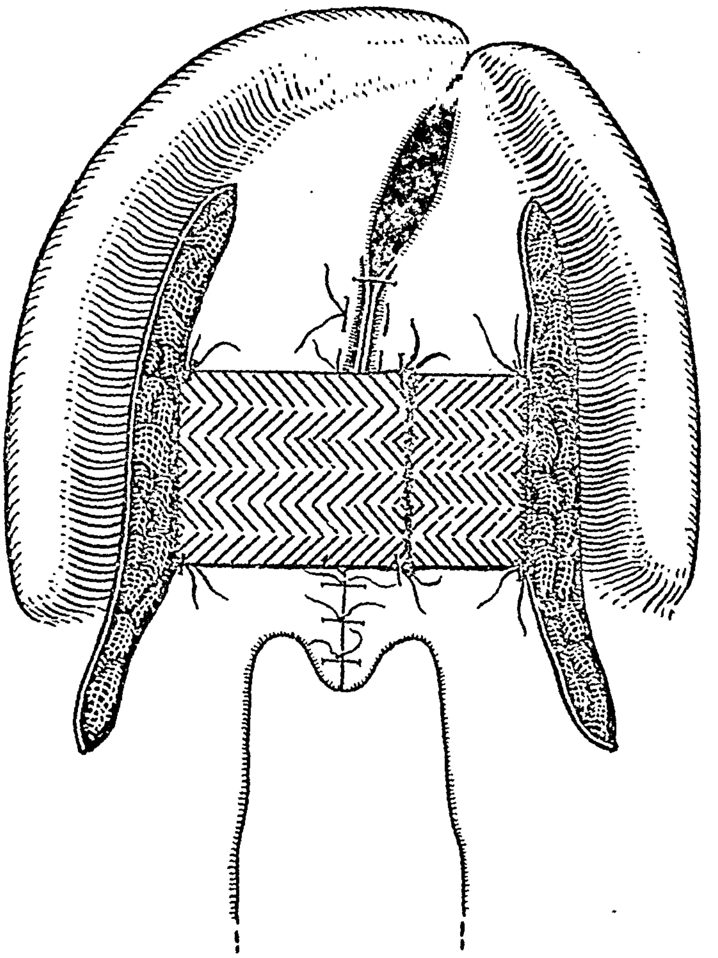

Fig. 4.—The waxed tape in position stitched where the ends meet, so as to maintain a proper tension, and caught by a stitch on each side, in front and at the back to keep it from rolling up into a string. The bone wax stiffens it and prevents its becoming saturated with saliva.

The suture material is of moment. In the uvula I use fine twenty day chromic catgut or horsehair or fine waxed black silk. The wax really is Moorhof-Mosetig bone wax, and the silk is boiled in it. Horsehair and silk have the disadvantage of usually having to be removed, though they may tear out of their light hold on the uvular mucosa. In the velum and in front of it I use black waxed silk or fine silkworm gut. This is for the sutures that are mattressed, and it is good policy to leave a long end to facilitate picking it up when the suture is removed. In the front part, for the tacking into its pocket of the Lane flap, the chromic catgut is enough.

I have used the body weight of 15 pounds as an index as to when the child is ready for the operation. Frequently these children are undernourished because they have difficulty in sucking a nipple on a breast or a bottle. So I have them all fed by a catheter in the nose. In a short time a child will learn to acquiesce in the method, and we can be sure that it really is getting a proper amount of food and without undue effort. After the operation, when the palate is freshly sutured, it is a definite advantage to eliminate the muscular act of swallowing and the consequent strain on the sutures in the soft palate. By this method it is quite possible to keep the child gaining in weight through the whole of the operative phase.

In operations on these children the anesthesia is ether, and the ether vapor is blown in through a soft rubber catheter which is fastened by a stitch in the nose, the stitch passing through the septum. The end of the catheter must reach only to the posterior nares. The child's head hangs half over the edge of the table, and is supported by a little shelf. I use a large complex gag, which holds the mouth open, holds the tongue forward, and pulls the corners of the mouth outward. Around the whole operative field I have black or dark blue cloths, sheets, towels, gowns, etc., to obviate the glare of the ordinary white environment. By this means the mouth is in the high light, rather than in the shadow.

350 Post Street.

ABSTRACT OF DISCUSSION

Dr. Vilray P. Blair, St. Louis: The Brophy operation was used fifty years ago by an Australian. The Lane is but an enlargement of the Cawley flaps and the Davis could be called a Warren with equal justice. The relationship of various technical steps to each other and to the age of the patient are much more important than the choice of the technical steps themselves. Dr. Sherman has brought out a new and useful technical step. In almost every step of his work and mine we differ radically and I would not have the idea that one technic was any better than the other. As to the matter of age, I am firmly intrenched with those who believe the earlier an operation is done the better. The best time for the closure of the lip is the first twenty-four hours, on account of the feeling of the parents; the second reason for early operation is the ease with which the bones are molded into place; and, thirdly, at this age shock is not a consideration. As to the soft palate, I use the straight Langenbeck operation. If one will wait until the child is 14 months old one can close the whole palate with ease in two operations. There is just enough tissue at birth to close the

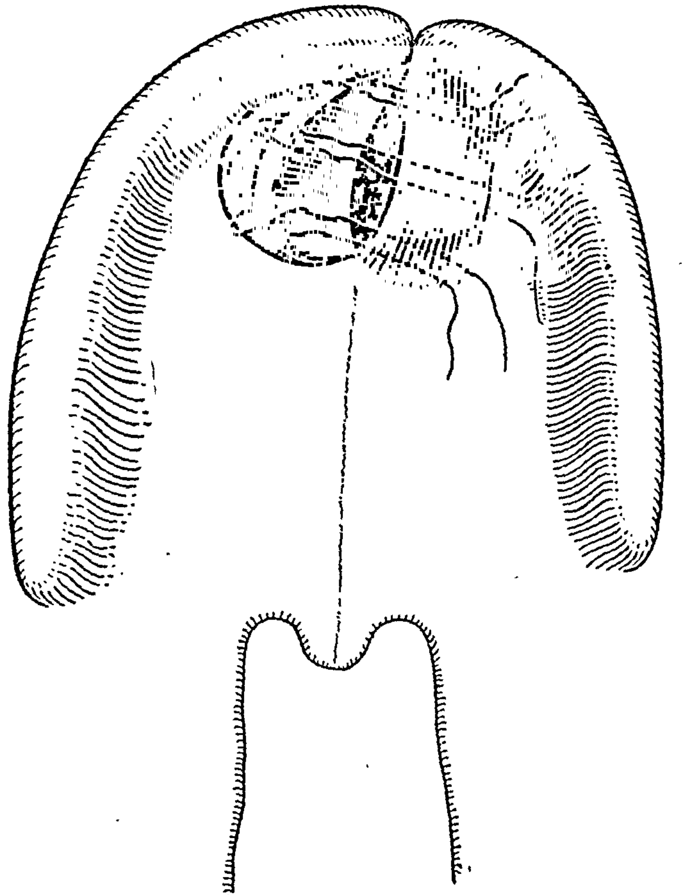

Fig. 5.—The little Lane flap partly turned up, the pocket on the opposite side made ready, and the suture to draw the flap into the pocket placed. The elastic traction and the repaired lip have remodeled the alveolar arch into a normal shape.

palate. After a year we have 39 mm. to close 38 mm. and a space. We must accommodate the methods to the age in this work. In all of these cases there is a considerable spreading of the nostril which will necessitate an operation on the floor of the nose to round it up as on the other side, but where the cleft remains wide open for a long time, for perfect closure of the lip there must be an operation to restore the nostril. The Brophy operation is usually not practical after three months. Some cases may be closed by elastic traction of a rubber band. There is no end of tricks that one must resort to in this work.

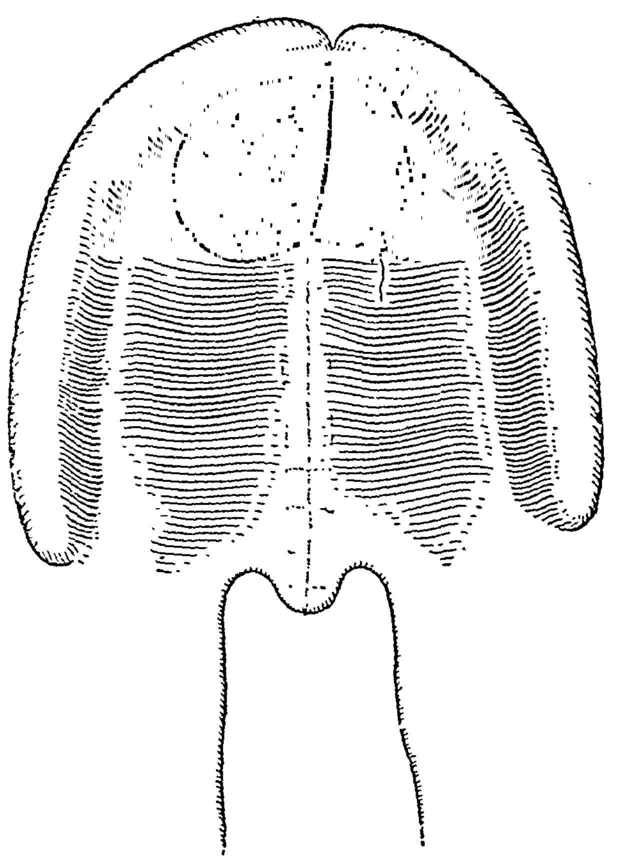

Fig. 6.—The flap drawn into place and held.

Dr. Truman W. Brophy, Chicago: There are fifteen different congenital defects of the palate, treatment of which requires methods of procedure sometimes slightly and sometimes radically different from all the others. The *premaxillary* bones are sometimes absent. In that case the fissure is almost invariably in the central line and the nasal bones are deficient.

Having operated on about 4,000 patients with cleft palate, I am convinced that when the alveolar processes are not cleft the operation should be deferred until the patient is between 12 and 14 months old; and that when the alveolar processes are cleft, as well as the whole hard palate, the patient should be operated on in early infancy, before the *fifth month.*

In complete cleft palate what is accomplished by first closing the lip? The greater deformity is concealed but the cleft is not closed as it should be. By drawing the lip together the anterior part of the hard palate is approximated, but not the enormous breadth of the tuberosities of the jaw. Had the bones been approximated in infancy, the patient would have a normal arch, but this is abnormal. The bones should be put together and fixed so they will unite. To do this the intervening soft parts and compact bone should be removed, the cancellated bone exposed so it will meet cancellated bone and thus be approximated and held quiet until the bones firmly unite. That is the essential thing to do. If there is any better method to pursue than the one I have devised, then let it be made known. A complete cleft palate is not unlike a fracture of bone, separated sutures, or an ununited fracture. I have never done a Langenbeck operation and I never will, for the reason that the Langenbeck operation calls for lateral incisions in the soft parts.

Dr. Walter B. Swift, Boston: I want to emphasize one point omitted in cleft palate treatment. It is the after-treatment. The majority of these patients have some speech disorder which persists long after the operation. The chief object of that operation should be the perfection of speech. In the Massachusetts General Hospital we have, in our speech clinic, evolved a system for the perfection of speech in these cases. Several now possess perfect speech.

Dr. Harry M. Sherman, San Francisco: It is a question as to whether the lip should be operated on early or late. When you put in a needle, little or big, and touch the tooth germ you have penetrated the capsule, and by moving the needle around to find a way between the teeth you inevitably make a relatively big hole. I shall never attain the skill which will enable me to pass between these closely packed-in tooth follicles and pull a wire through without wounding and infecting the follicles.

As regards the tensor palati muscles, I make the incision outside the hamular process and so do not cut them off. I move all of the tissue implicated inwards, and that must stretch the nerves which supply the muscles but may not tear them off, because two or three years later in life I have seen these palates move. Dr. Charles H. Mayo used to put a piece of gauze round the mucoperiosteal flaps as a drain. I use tape instead of gauze, and wax it so that it cannot soak up saliva and perpetuate septic infection in the mouth, and then adjust it to be a relaxation suture. That is my innovation.

Of course training these children to speak is a very important matter. It is especially important in those families in which bad English and bad enunciation are the habit. In families in which good English and good enunciation are the habit, children will speak very well without much special instruction, though they will speak better if they have it.

PREMATURE DETACHMENT OF PLACENTA, WITH DELIVERY OF A LIVE BABY BY CESAREAN SECTION

David S. Hillis, M.D., Chicago
Attending Obstetrician, Cook County and Provident Hospitals; Assistant Obstetrician, Chicago Lying-In Hospital; Instructor of Obstetrics, Northwestern University Medical School

Mrs. S. G., aged 35, primipara, was in the ninth month of pregnancy. For the past thirty days there had been a small amount of albumin with no casts in the urine. The maximum blood pressure was 120. May 12, the patient was struck in the abdomen by the head of a 3-year-old child, who threw himself in her lap. This caused considerable pain at the time, but was soon forgotten by the patient. May 16, four days later, the patient walked seven blocks; when near her house she was taken with moderately severe pain in the lower abdomen and back, which was continuous, not intermittent. One hour later, fresh blood was discharged from the vagina, in small quantities but continuously. The patient thought that she lost about 4 ounces of blood during the first hour or two. At 3 p. m. (three hours after the pain had started), examination at the Chicago Lying-In Hospital showed: General condition of patient excellent; no signs of shock; pulse 94; color good; fundus one finger below ensiform; uterus tense with increased tenseness at intervals of about two to six minutes, accompanied by pain. Pain, however, was constant in lower abdomen and back. Fetal parts were difficult to outline on account of tenseness of uterus, but back seemed to be to the left, head movable, floating above inlet. Fetal heart tones were 140 to 148 left lower quadrant, regular, rhythmic, but somewhat variable during a minute's observation.

Rectal examination showed cervix not effaced, about 3 to 4 cm. long. The os hardly admitted one finger. During this examination about one-half ounce of very dark colored semifluid blood was expressed from the vagina. At 4 p. m.

the heart tones went to 176, with slight irregularity; otherwise the condition remained the same. At 5:30 p. m. the heart tones were 164 to 168, and somewhat irregular. There were slight uterine contractions, irregular, at intervals of from three to seven minutes. There was constant pain in the back and the lower part of the uterus. Palpation of the uterus immediately caused a tenseness of the uterine wall, equal to the painful contractions which came on spontaneously; the uterus at all times was firmer than normal, and slight bleeding from the vagina continued, some of which was bright in color. Rectal examination showed no change from the findings at 3 p. m. More thick dark colored blood was expressed from the vagina.

At 6:30 p. m. under ether anesthesia, classical cesarean section was done. The child was not asphyxiated. On removal of the baby, a clot of blood was seen lying in the opening of the uterus, and on introducing the hand to remove the placenta, the clot was expelled on to the abdominal wall. The position of the placenta in the uterus showed that it was not praevia. This clot was in shape a circular biconvex disk, 14 cm. in dameter and 4 cm. thick in its middle or thickest portion. It weighed 15 ounces. The surface and edges were smooth and regular in outline, except in one part of the circumferance, where there was a small clot about 4 cm. in diameter, ragged and somewhat irregular in outline. This was attached to the edge of the main mass. This clot was very firm, dark, almost black, and retained its integrity in spite of much handling for examination, weighing and measuring. The placenta was lying on the posterior wall of the uterus, with its edges near the incision in the uterine wall as the uterus contracted after removal of the baby. The uterus did not contract well after the removal of the placenta, and 1½ ampules of pituitary extract were injected into its wall directly. This caused a fairly satisfactory amount of contraction, but less than is usually secured by the administration in the same manner of 1 c.c. of the drug. During the suture of the muscle walls, it was noticed that the peritoneum over the entire surface of the uterus appeared mottled, which was evidently due to small hemorrhages under the serosa. The uterus had been subjected to only a minimum amount of traumatism and manipulation. This mottled area was seen on the posterior surface, as well as on the sides and anterior surface, those on the anterior wall not being over the placenta site. The uterus now was contracted in a satisfactory manner, and it was decided not to remove it. The macroscopic appearance of the muscle wall in the incision was normal. The placenta was circular in shape, 30 cm. in diameter; the cord was centrally implanted, and the fetal surface showed no abnormalities. The maternal surface did not show a well marked area of depression, corresponding to the size of the clot, although there was a considerable area, irregular in shape, where the placenta was thinner than the rest and somewhat paler.

The diagnosis was based on the history; the sudden onset of the pain; the character of the pain; the marked irritability of the uterine muscle; the abnormal tenseness of the uterus, and the bloody discharge appearing one hour after the onset of the pains; and in spite of the continuance of the heart tones and the absence of signs of shock on the part of the mother, the absence of these two signs was accounted for by the fact that the separation was not of sufficiently large extent to kill the baby or produce shock; although, in these cases shock is usually present out of proportion to the amount of hemorrhage and apparent traumatism. The patient, who was a robust woman, went home with her baby in excellent condition on the fourteenth day.

The case presents several points of interest:

1. The presence of signs and symptoms definite enough to justify a diagnosis before the death of the baby.
2. The hemorrhagic condition of the entire uterine surface corresponding to Williams' idea of the pathology of premature separation.
3. The value of pituitary extract injected directly into the uterine muscle in these cases.

106 South Michigan Avenue.

Military Medicine and Surgery

CLINICAL MANIFESTATIONS AND TREATMENT OF GAS POISONING

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Major, M. R. C., U. S. Army; Chief of Medical Service, U. S. Base Hospital No. 12
AND
W. STANLEY GIBSON, M.D., CHICAGO
Lieutenant, M. R. C., U. S. Army
FRANCE

The ingenuity of the German mind has long been recognized. During the past three years this ingenuity has made itself felt by devising diabolical schemes for the destruction of life—both combatant and noncombatant. Submarine warfare was expected; liquid fire was a possibility; but poison gas was utterly unknown until used by the Germans during the second battle of Ypres in the spring of 1915. Since then, poison gas has been used by all belligerents with telling effect. Since July 19, 1917, our enemy has used a new preparation which for want of a better name is called "mustard" gas.

The victims of this gas present a clean-cut clinical picture characterized by conjunctivitis with excessive lacrimation, laryngeal and bronchial irritation, and superficial burns. These symptoms are usually preceded by epigastric distress and emesis.

When one is exposed to the gas, an odor not unlike mustard is experienced, followed in a number of hours by the symptoms mentioned. The so-called free interval, rarely less than four hours and practically never more than sixteen, is explained by the fact that this "mustard" gas decomposes on exposure to moisture, the symptoms resulting from the action of the products liberated by the decomposition.

SYMPTOMS

The victim, although knowing that he has been exposed, feels perfectly well and usually continues to "carry on" until relieved from duty. The first evidence of trouble usually occurs hours later, when he may be awakened by epigastric distress and violent vomiting, followed soon afterward by the cardinal symptoms:

1. The conjunctivitis is severe; photophobia is common and lacrimation profuse. Puffiness of the eyelids is constant in the severer cases. Corneal involvement is very rare.

2. The laryngitis and bronchitis are primarily irritative—not inflammatory—and nonfebrile. A sense of constriction about the larynx and tightness of the chest are early and usually persistent symptoms. Aphonia is common but usually evanescent. On the other hand, the cough occurs early and is the last symptom to disappear. It is paroxysmal in character, particularly severe at night, and accompanied by a serious discharge in light cases, hemorrhagic expectoration in the most severe, and purulent in the late cases secondarily infected or complicated by bronchopneumonia.

3. The exposed parts, for example, the face, hands, forearms, and in the Kilties the knees, are most commonly affected by burns; frequently the genitals, buttocks, shoulders and back are severely burned; the feet are but rarely involved. During the first forty-eight hours the skin may be merely pigmented, presenting

a blackish, brown appearance, and harsh to the touch. After a number of days, desquamation takes place. More often, however, there is distinct blistering, the vesicles varying in size from a millet seed to 4 or 5 inches in diameter. The burns usually involve only the superficial layers of the skin, although second degree burns are not uncommon. It is our belief that all the symptoms enumerated above are the result of chemical burns; that the mucosae of the eyes, larynx and bronchi, as well as the skin, are excoriated by the gas.

PHYSICAL EXAMINATION

In addition to the conjunctivitis and skin burns, examination reveals a diffuse bronchitis, usually nonfebrile, with hurried breathing. True dyspnea is rare except in the very severe cases complicated by bronchopneumonia, or when pulmonary edema develops. Occasionally, the heart is enlarged to the right, with an accentuated second pulmonic tone. The blood pressure, systolic and diastolic, is slightly reduced. The blood picture is in no way characteristic. Slight eosinophilia (from 3 to 5 per cent.) has been noted in patients suffering extensive burns.

The course of this syndrome is self limited, and depends entirely on the amount of damage done and the time elapsing between the gassing and the institution of rational therapy. Complications necessarily modify and alter the prognosis. In very severe cases, pulmonary edema may develop early; and death may occur a few hours after the onset of symptoms. On the other hand, in the lighter cases, convalescence is rapid.

COMPLICATIONS

Bronchopneumonia is unquestionably the most common complications with which we have to deal. It usually comes on from seventy-two to ninety-six hours after the exposure to the gas, and frequently runs a turbulent course with high fever, intense dyspnea and cyanosis, cough, and not uncommonly bloody expectoration. The termination is either by lysis in two to three weeks, or fatally in a few days from a superimposed pulmonary edema *which is not of cardiac origin.* Unlike the chlorin gas, this more recent product affects the heart but little. The myocardium, as demonstrated by necropsy, is not damaged. To be sure, at times the heart is enlarged, transversely; but this is purely compensatory, as the pulmonary changes necessarily increase the work of the right ventricle. Albuminuria is not uncommon, but true nephritis has been extremely rare in our experience. This is quite remarkable, as the burns involving skin and mucous membranes are frequently quite extensive.

We regret exceedingly that we cannot discuss prognosis. The cases which have come under our observation included every degree of severity; some of the patients were ready for duty in a few days, while other cases were severe, with and without complications. Also, the number has been sufficiently large to justify very definite conclusions. To publish these conclusions would be unfair to our allies and ourselves, and might be of value to our enemy.

TREATMENT

The intensity of the symptoms depends largely on the rapidity with which treatment can be instituted. We suggest the following procedure, viz.:

1. Knowing that this gas decomposes on exposure to moisture, we consider it highly important that the victims be given an entire change of dry clothes as soon as is practicable, and that dry sleeping quarters, preferably above ground, be procured.
2. Phlebotomy should be performed for the early pulmonary edema which develops in the very severe cases.
3. Oxygen inhalations are of questionable value, but should be tried.
4. The eyes should be irrigated with boric acid solution; alkalis should be used internally, and 10 per cent. sodium bicarbonate solution should be applied externally for cutaneous burns.
5. For the distressing paroxysmal cough opiates are indicated, preferably codein or heroin, in sufficient dosage to allay the irritation of the respiratory mucosa. Antispasmodics, such as belladonna, apparently aggravate the respiratory symptoms, owing to their drying effect.
6. Complications should be treated as they arise.

SUMMARY

1. An interval (from four to sixteen hours) of freedom from distress exists between the actual gassing and the onset of the symptoms.
2. The cardinal symptoms, conjunctivitis, laryngitis, bronchitis and skin burns, are all due to the excoriating effect of the gas.
3. The principal complications are early pulmonary edema and relatively late bronchopneumonia.
4. Dry clothing and sleeping quarters may prevent the development of symptoms after slight exposure, and possibly may lessen the severity in those more severely gassed.

[Editor's Note.—The "mustard gas" from German shells is well known to the Allies in regard to its composition and the steps to be taken to protect against it. The gas is liberated from liquid in the shell; and when the liquid is scattered on the clothing or skin, or when the men move over ground wet with the liquid, burns will result. Protection against the liquid should be care to avoid contact. The liquid is dichlorethylsulphid. As the gas has very little odor, the men may delay in applying their respirators and be gassed or, in order to have better vision, they may neglect to adjust the whole face-piece and suffer a lacrimatory effect. The eye symptoms disappear, and no permanent injury results. The English box respirator is a complete protection to the eyes and lungs against the gas.]

New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application. W. A. Puckner, Secretary.

ATOPHAN.—A proprietary brand of phenylcinchoninic acid. It complies with the standards for phenylcinchoninic acid, U. S. P., but melts at from 208 - 212 C.

Actions, Uses and Dosage.—See New and Nonofficial Remedies; 1917, p. 239, under Phenylcinchoninic Acid and Phenylcinchoninic Acid Derivatives.

Manufactured by Schering and Glatz, New York. U. S. patent No. 1,075,171 (Oct. 7, 1913; expires 1930). U. S. trademark No. 84,596.

Atophan Tablets.—Each tablet contains atophan 0.5 Gm. (7½ grains) and a small amount of cacao.

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SATURDAY, DECEMBER 8, 1917

INFLUENCE OF THE SEX GLANDS ON DEVELOPMENT

The influence exerted by the genital glands on the other parts of the reproductive apparatus, and on the body generally, is a remarkable illustration of the chemical correlations that may exist in the organism. That the lack of the sex glands—a situation which arises as the result of castration—may bring about conspicuous alterations in physique and modifications of the expected development is a fact long familiar. When the removal of testes or ovaries is carried out early enough, that is, before the period of puberty, the development of the so-called secondary sexual characters is interfered with. We must regard the germ cells, says Starling, not only as representing the cells from which the individuals of the new generation may be developed, but also as concerned in the formation of chemical substances which, discharged into their hosts, affect many or all of the functions of the latter, with the object of finally subordinating the activities of the individual to the preservation and perpetuation of the species.

Even more striking than the long observed failure of development in the absence of suitable hormones furnished by the sex glands, a result that is essentially negative in character, are the positive alterations in bodily evolution that result from the introduction of female factors into the developing male, and vice versa. By means of transplantation experiments, in particular, it has been possible to show that the sexual glands direct an influence on sex characters through something resembling an internal secretion. Remarkable instances have been afforded by Steinach[1] in particular. For example, he transplanted to castrated young male rats and guinea-pigs the ovaries of their sisters; the males became in weight, size, and in all proportions of their body like females. The mammary glands were highly developed and even secreted milk, whereas the growth of the penis was obviously inhibited. On the other hand, young castrated female guinea-pigs increased in weight and size after implantation of testes, and became in all the proportions of their body like males. The castrated male is feminized by the ovary, the castrated female is masculated by the testis. Besides, the feminization and the masculation in the experiments of Steinach were also manifested in the transformation of the sexual behavior of the experimental animals.

It is apparent from this and other evidence which might be cited that the hormone of the sex glands acts in a sex-specific character, as Lipschütz[2] has recently termed it; that is, the male gonad furthers the development only of male sex characters and inhibits the development of female sex characters, whereas the female gonad furthers the development of female sex characters and inhibits the development of male sex characters.

Steinach has gone a step farther in recent years in suggesting that the organism is nonsexual until it has reached a definite stage in embryonic development. The sexual transformation of the body is believed by him not to begin until the puberty gland has become differentiated into male or female. In support of this view, Lipschütz cites the observations that a castrated hen assumes the plumage and the spurs of a cock, whereas it is well known that the castrated cock keeps his plumage and spurs. From these facts, he adds, we must conclude that the development of the male plumage and the spurs does not depend on stimulation by the male sexual gland, whereas the female sexual gland transforms a male-kite plumage into a female one and inhibits the growth of the spurs. The male plumage and spurs become male sex characters, according to Lipschütz' interpretation, not because they result from an action of the male sexual gland on the nonsexual soma, but because the development of these nonsexual characters is influenced in the female by the internal secretion of the female sexual gland. The hormones of the sex gland may thus further or inhibit the natural continuance of conditions foreshadowed in the embryonic form.

THE BANANA AGAIN

Several years ago we called attention to the banana as an undervalued source of nutriment.[3] The defense of this fruit, which ought to be available at comparatively low cost in times of normal commerce and transportation facilities, almost invariably provokes protests from persons who maintain that the banana is a cause of indigestion and a treacherous dietary component which is at best to be looked on as a luxury, harboring insidious dangers to alimentation. Since our earlier comments in which the fallacies of the still current prejudice against the banana were exposed, several investigations, notably those by A. R. Rose and others at the New York Post-Graduate Medical School and Hospital, have served to fortify the wider use of the banana as a wholesome, palatable and nutritious article of food. The latest of these dietary studies[4] has even gone so far as to put beyond criticism the appropriateness of the banana as a food for young children.

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[1] What Determines the Development of the Secondary Sexual Characters? editorial, The Journal A. M. A., Feb. 17, 1912, p. 484; The Modification of Secondary Sexual Characters, Feb. 21, 1914, p. 618.

[2] Lipschütz, A.: On the Internal Secretion of the Sexual Glands, Jour. Physiol., *1917*, **51**, *283*.

[3] The Undervalued Banana, editorial, The Journal A. M. A., Jan. 27, 1912, p. 276.

What is the banana, from the standpoint of the student of nutrition? It is essentially a highly edible source of carbohydrate comparable, in its richness of foodstuffs, with the most popular of fruits. Like other members of this group of products, the banana undergoes specific changes in the course of its ripening. The nutrient carbohydrates in the banana comprise essentially one fifth of the entire fruit. In the green specimens this carbohydrate is in the form of a starch, but on maturing this is converted first into sucrose and finally into invert sugar. The proteins amount to less than 1 per cent., and their nature is at present unknown. The fat and fiber are negligible. The ash is important both in amount and in the kind of its constituents. Looked at simply as a source of food fuel or energy, the banana yields over 400 calories per pound. Olives, sweet potatoes and corn are the only common fresh fruits and vegetables that have a higher fuel value than the banana. Other fruits and vegetables that may be classed with the banana as having approximately 1 caloric per gram are grapes, plums and potatoes, together with figs, which are almost identical with bananas, and dates, with a fuel value equal to that of grapes.

Raw starch has not proved to be a satisfactory nutrient for the human body. No one thinks of eating the starchy potato uncooked; and the tolerance of the human alimentary tract for the uncooked starchy chestnut has decided limitations. It is obviously unwise, therefore, to expect the raw banana, eaten in the stage in which much unconverted starch still remains in the fruit, to prove free from the same objections that apply to other unripe or uncooked starchy foods. Even the green banana can be eaten with impunity if the pulp is thoroughly cooked, as is done in the case of the comparable potato. The chief reason for the unfavorable reputation attained by the banana, when eaten uncooked, appears to lie in the failure of most persons to understand what a ripe banana really is.

The chemist has closely followed the changes that the skin and pulp of the banana undergo simultaneously during ripening, a process facilitated by heat in the presence of air. Bananas that are merely yellow are not ripe. Pease and Rose remind us, in harmony with numerous published analyses, that characteristic changes take place in the peel as the fruit matures. The thick, turgid covering of the green banana becomes thinner and more pliable; the color passes from green to pale yellow, deepening to golden yellow with brown spots; and finally the peel becomes brown all over. Bananas are edible raw when the brown spots appear, and need not be refused as overripe when the peel is entirely brown if the covering is intact and the pulp shows no signs of fermentation. The brown color of the ripening must not be confused with the brown patches due to bruising.

The proof of the pudding is the eating. Utilization experiments have demonstrated that the underripe banana when baked is utilized to about the same extent as the potato, and is similar to this vegetable in its nutritive value. There has in no case been any suggestion of deleterious effects from eating the banana baked or raw when fully ripe. In the late yellow stage, before the development of the distinct golden color, the raw fruit can be consumed by normal persons in small quantities (say one or two bananas) without discomfort or apparent harm. Nevertheless the recent authors are of the opinion that the raw fruit should not be given to children at this stage. Pease and Rose have conducted enough actual feeding trials on young children to justify the statement that the banana can with profit enter liberally into the child's dietary, provided it is fully ripe or well cooked. If eaten baked in the yellow stage of ripeness, or if eaten raw when fully ripe, the banana makes a delightful and highly nutritious article of food. Its composition does not warrant the use of the banana as the main component of the child's dietary, but it can compete well with other fruits, and is decidedly to be preferred to candies. The nutritional value is relatively high, approximately one calorie per gram of pulp; and its carbohydrates, when it is fully ripe or cooked, are not less assimilable than those of cereals and potatoes. In the raw food, the digestibility is directly proportional to the ripeness of the fruit. There is no positive evidence that the banana influences bowel movements. In the many tests there was no suggestion whatever of any deleterious effect from consuming large amounts of fully ripe bananas. Prolonged use of the underripe fruit, on the other hand, developed undesirable symptoms.

Let the important fact be emphasized again that the banana ought not to be eaten raw until after the brown spots begin to appear. At this stage, we are reminded by the investigators cited, the banana assumes a full golden yellow and is in its most attractive appearance. A completely browned skin, they properly add, is not in itself a sign of overripeness, and such fruit should be judged by the texture of the pulp. The brown color of the peel, however, should not be confused with the darkening due to bruises. An injured banana is soon invaded by molds and yeast cells through the abrasions and the broken end; the banana "finger," therefore, should not be broken from the "hand" or stem, but cut off in such manner as to leave a good margin between the cut surface and the pulp.

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[4] Pease, M. C., and Rose, A. R.: The Banana as a Food for Children, Am. Jour. Dis. Child., November, 1917, p. 379.

When we have at length learned to recognize ripeness in the banana and have ceased to eat the unripe fruit because we mistake its yellow tinge as the sign of a wholesome stage, we may further come to appreciate a positive advantage in the "sterile package" represented by the undamaged peel. Bailey's investigations have shown this to be practically impervious to bacteria. Therefore — and this is worthy of distinct emphasis — a banana properly handled is "uncontaminated by dirt and pathogenic germs even if purchased from the push cart in our congested streets." How many other foods that are edible without cooking can make an equally meritorious claim?

MILK PRODUCTION AND DISTRIBUTION

We have several times referred to the growing importance of the economic aspects of milk production and distribution. The cost of milk to the consumer is so intimately bound up with public health interests that it has long been impossible to separate sharply economic and sanitary issues. Under the pressure of war conditions, this relation is becoming closer than ever.

New York investigators have found that in October of this year a definite decrease in milk consumption in that city could be noted. In 2,200 families visited, the daily amount of milk produced had fallen to 3,193 quarts, as compared with 4,797 quarts in the previous year. Coincident with the decrease in amount of milk purchased, there was a shifting from the better grades of milk to the cheaper, 266 families abandoning Grade A milk for Grade B, and sixty-seven changing from Grade B to Grade C. Dipped milk also was substituted for bottled milk, and the sale of condensed milk increased. The investigators found that 2,148 children under 6 years of age were drinking tea and coffee. In view of these facts, it is not surprising that the New York City Health Department believes that the recent increase in infant mortality in that city is due to a decreased use of high grade milk.

It is, indeed, high time that we should have the cost investigations that are now being made or projected in various parts of the country. If competent investigators are armed with ample authority to secure the facts, some interesting results may be anticipated. Certain opportunities for inquiry and reform have been evident for a long time. The waste involved in current distributing methods appeals to the most superficial observer as quite without justification. In the well known Rochester, N. Y., investigation, it was found that in one small section of the city, fifty-seven dealers delivered milk to 363 homes, traveling altogether some 30 miles. The same service could have been given by one distributer traveling 2 miles. Plans for cooperative dealing have been worked out; why are they not put into effect? Committees meet, discuss and decide, but no action is taken. Selfish interests—always a little more persistently aggressive than unselfish—contribute powerfully to a policy of inaction. Some observers express much curiosity as to the profits of the large milk distributing companies, not merely at the present time but during the last ten years. Has the public been getting a square deal?

Then there is the dairy farmer, himself, that potent political factor in all agricultural states. What state official is going to "antagonize" the rural vote? In many state legislatures the country members outnumber those from the city districts. State institutions are dependent on the legislature for their appropriations. Is it a fact that the actual cost of milk production warrants the enormous price increase that has taken place all over the country in the past few months? Crops of the chief cattle foods are said to have been very large in most sections. The cost of producing and storing these foods may have increased, but not greatly for the average farmer, tilling his own soil and milking his own cows. Does the increased price demanded by the farmer for his milk represent a genuine rise in cost production, or is the traffic being charged all it will bear? One responsible health officer over his own signature answers this question in no uncertain way.[1]

It is to be hoped that the investigations now under way will be real investigations, and that the questions here raised will be answered authoritatively. This is no time for hoodwinking ourselves or others, or for being tender with the feelings of selfishly interested groups, or for resting content with half way information or half way measures.

LOW ARTERIAL BLOOD PRESSURE

The emergency of the war, with its countless experiences of surgical shock, has directed attention to the problems of low blood pressure more emphatically than has ever been done before. Recent timely experimental contributions to this subject in THE JOURNAL by Pike and Coombs,[2] Henderson and Haggard,[3] and Guthrie[4] bear witness to the importance and the intricacy of this much debated topic. It would be both futile and presumptuous to attempt in a brief editorial comment to unravel the difficulties presented. It may be worth while, however, to note for the reader less well versed in the phenomena encountered in connection with shock, that low arterial pressure, per se, may be due to at least two quite different causes, apart from failure of the heart itself. An actual deficiency of blood in the circulation, such as occurs after marked hemorrhage, reduces the output of the heart so that it may become insufficient to take the place of the blood flowing through the capillaries. The obvious form of relief for this condition is to replace effectively the fluid lost. Constriction of the arterioles may raise the blood pressure; but as Bayliss[5] has clearly pointed out in a review of the subject, while it is evident that constriction of the arterioles would raise the pressure in such cases, by diminishing the rate of outflow through the capillaries, the result would be to decrease the supply of blood to all organs whose arterioles are affected, so that no real gain would be obtained. There is an abundance of evidence now at hand to show that when arterial pressure is lowered through loss of blood it cannot be brought back except to a certain degree by the injection of simple saline solutions in a volume equal to that of the fluid lost. The fluid thus introduced rapidly leaves the blood vessels, in small part perhaps through prompt elimination by the kidneys, but in far larger measure by passage into the tissues, as has been pointed out by Bogert, Underhill and Mendel.[6] Several investigators have maintained, and in this they are supported by Bayliss, that if the viscosity of the solutions injected to replace lost blood is raised to that of blood, as can be done by using gum or gelatin solutions in saline, the restoration of blood pressure and volume is far less transitory than is the case with saline solutions alone. The difference in this case, says Bayliss, is due to the osmotic pressure of the colloids injected, by which loss of water by the kidneys and to the tissues is prevented. In animals this has been accomplished by the addition of gelatin or gum acacia to Ringer's solution. Colloids that exert no osmotic pressure are ineffective. Perhaps the intravenous injections of glucose as performed by Erlanger and Woodyatt[7] will prove more satisfactory.

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[1] Wright, F. W.: Month. Bull., Dept. of Health, New Haven, Conn., November, 1917.

[2] Pike, F. H., and Coombs, Helen C.: The Relation of Low Blood Pressure to a Fatal Termination in Traumatic Shock, THE JOURNAL A. M. A., June 23, 1917, p. 1892.

[3] Henderson, Yandell, and Haggard, H. W.: Observations on Surgical Shock, THE JOURNAL A. M. A., Sept. 22, 1917, p. 965.

[4] Guthrie, C. C.: Experimental Shock, THE JOURNAL A. M. A., Oct. 27, 1917, p. 1394.

But there is another condition of low blood pressure in which the volume of blood is entirely normal, even when the heart is beating efficiently. The result is due in such cases to peripheral vasodilatation. Bayliss has well analyzed this situation by saying that what is here required is clearly to restore the normal tonic contraction of the vessels. In these circumstances an increased volume of blood may be useless or even harmful, if the heart cannot correspondingly increase its output. Even when no sign of heart failure can be detected, however, injections of suitably viscous saline solutions do not produce any permanent rise in arterial pressure in this category of cases. The vasomotor mechanism is not exhausted under these circumstances, so that the employment of suitable substances to act on it may bring success in restoring the pressure. It is a striking fact that a fall of arterial pressure by itself produces peripheral vasoconstriction through nervous channels; and a rise in pressure appears to induce vasodilatation.

These distinctions, already familiar to the intensive student of the circulation, need to be impressed on all who tend to put every instance of low arterial blood pressure into a common category and assign it to a uniform cause. In shock one has to deal with even more complex conditions in which the condition of the venous circulation, the nutrition of the nervous centers, an altered chemical composition of the circulating medium, and perhaps other as yet entirely unanticipated factors referable to the tissues themselves may play the decisive rôle.

Current Comment

CHOLESTEROL ESTIMATIONS IN BLOOD

The rapid development that the clinical chemical examination of the blood has experienced as a diagnostic technic in the past few years has led to the exploitation, so to speak, of various blood constituents as indexes of functional derangement. In some cases these attempts have been successful in offering new or better indications of pathologic conditions that cannot be so well diagnosticated by other means now available. These contributions, notably such as relate to the nonprotein nitrogen, the uric acid, the sugar and the lipoid content of the blood, have repeatedly been referred to in The Journal. With an extension of the use of microchemical methods in clinical laboratories, and the accumulation of first hand experience regarding what they can reveal in the clinic, a better critique of chemical blood analysis will gradually be evolved, and the demonstrably useful features will be retained as a part of the laboratory routine. This entire phase of clinical observation is passing through much the same stages as were traversed in the development and perfecting of the now highly successful and invaluable methods for the morphologic examination of the blood. With this preface we may refer again to the subject of the cholesterol content of the blood, summarizing the best evidence available up to the present time. The hopes of the past have not all been realized. It seemed likely at one time that hypercholesterolemia would prove to accompany cholelithiasis. Indeed, the formation of gallstones has been charged to a high content of cholesterol in the blood. The latest statistics, by Gorham and Myers[1] of the New York Post-Graduate Medical School and Hospital, indicate that the findings in cholelithiasis are quite inconstant. They conclude that since hypercholesterolemia may be found in many conditions and is not uniformly constant in cholelithiasis, it would seem that the blood cholesterol possesses only a limited diagnostic usefulness in this condition. Gorham and Myers agree with several previous observers[2] in the conclusion that in pathologic conditions hypercholesterolemia is comparatively common, being reported in arteriosclerosis, nephritis, obstructive jaundice and diabetes, though it is not invariable in these diseases. A content of cholesterol lower than normal is a greater rarity, however. It has been recognized for some time to occur particularly in anemias, notably those of the pernicious type. Here it may have considerable significance, especially in view of the reputed antihemolytic action of cholesterol. The possibility of cholesterol administration at once suggests itself; but it is still too early to foresee the result of such procedure with any certainty. The occurrence of an augmented quantity of cholesterol in diabetes is in harmony with the lipemia that so often occurs in this disease; so that cholesterol may perhaps here be taken as an index of the lipoid content of the blood and of diabetic lipemia in general.

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[5] Bayliss, W. M.: Methods of Raising Low Blood Pressure, Proc. Roy. Soc., B, 1916, 89, 380.

[6] Bogert, Lotta J.; Underhill, F. P., and Mendel, L. B.: Am. Jour. Physiol., 1916, 41, 189, 219.

[7] Erlanger, Joseph, and Woodyatt, R. T.: Intravenous Glucose Injections in Shock, The Journal A. M. A., Oct. 27, 1917, p. 1410.

[1] Gorham, F. D., and Myers, V. C.: Remarks on the Cholesterol Content of Human Blood, Arch. Int. Med., October, 1917, p. 599.

NEPHRITIS, BLOOD LIPOIDS AND ACIDOSIS

The pathologic manifestations of nephritis are no longer interpreted solely in the light of the altered excretion of urinary products as a result of defective kidney function. Frequently there are more remote disturbances of physiologic performance attributable in ultimate analysis no doubt to the renal defects of the organism, yet not explicable directly as kidney phenomena. The confusion of cause and effect in relation to nephritis has been illustrated in the occasional coincidence of gout and nephritis. An illustration of an abnormality associated with certain stages of kidney disease, yet not obviously concerned with inability to excrete urine, has been clearly presented by Bloor[3] at the Harvard Medical School in a study of the blood lipoids by the analytic methods so successfully elaborated by him. The abnormalities in severe nephritis were found to be a high content of fat in the plasma and corpuscles, and an increased amount of lecithin in the corpuscles. The cholesterol values remain essentially normal. These abnormalities are the same as are found in alimentary lipemia, and for this reason are regarded as the result of a retarded assimilation of fat from the blood. Bloor points out that the most frequent of other conditions in which abnormalities of the blood lipoids are common is diabetes, and a prominent symptom of severe diabetes is "acidosis"—a decreased "alkali reserve" in the blood. Recent investigations[4] have established the fact that acidosis is frequently a feature of severe nephritis, and in most of the cases of certain types studied, acidosis was probably present, as evidenced by the dyspnea, low carbon dioxid tension in the alveolar air, and coma. Since an adequate alkalinity of the blood and tissues is necessary for their normal functioning, it seems very probable, says Bloor, that the retardation of fat assimilation found in nephritis is one manifestation of a general phenomenon brought about by a decreased blood and tissue alkalinity. After all the defects for which acidosis has recently been made responsible, what detrimental features of a depleted alkali reserve are we to expect next?

CLEMENCEAU—A PHYSICIAN

The man of the hour in France is Georges Clemenceau, noted as an editor, as Prime Minister of France, as a "wrecker of cabinets," and characteristically as "the stormy petrel of French politics." It will come as a surprise to physicians to know that this conspicuous figure in the political life of France is a physician, the son of a physician, and that for a time, according to the New York *Times,* he practiced medicine in Stamford, Conn., and in New York. Clemenceau was born in 1841, was licensed to practice medicine in 1865, and between 1865 and 1869 established himself on West Twelfth Street in New York City. Failing in the practice of medicine, he became an instructor of the French language and literature in Miss Aikens' Young Ladies' Seminary at Stamford, Conn. Here he married one of his pupils, Miss Mary Plummer of Springfield, Mass. He returned to France in 1870. Of his career as a physician but little is known. Among his works is one on the "Generation of Anatomic Elements." It is quite probable that his training as a physician influenced his political career. We quote from an article in the *Nineteenth Century,* 1907:

> The materialist doctor in him does not shrink from the ridicule one incurs by talking about a "total view of the universe," but the idealist appears at every moment in the social reformer.

Public Instruction in Cooking.—The Ministry of Food of Great Britain, and the London County Council, have provided facilities for instruction in cookery. According to *Commerce Reports* a number of schools have been established for teaching how to cook war foodstuffs, where persons may take the course without cost. The London County Council has a number of traveling kitchens equipped on motor cars which travel about London giving demonstrations on such subjects as: voluntary rations; food that serves the same purpose as meat; how to get the best value for money; substitutes for wheat flour; use of oatmeal, barley flour, maize meal and other cereals; economical use of sugar, aids and substitutes; catering for a week; unwise purchasing; the evils of underfeeding; the relation of price to value; kitchen economies; the fireless cooker, the "hot water jacket" and similar apparatus, and other devices for the saving of fuel. Courses in domestic economy have been provided in both the day schools and evening institutes. Children are required to attend these schools between the ages of 5 and 14 years. The course in domestic science is taken during the last two years of their attendance. Pupils devote one-half day each week to this subject. In some districts pupils devote half of the week for three to six months to these courses. The materials prepared in the cookery schools are sold to the children and teachers at about 90 per cent. of their cost. In January, 1917, there were 178 cookery centers, 56 laundry centers, 128 combined cookery and laundry centers, and 72 housewifery centers, providing for about 65,500 children. In addition to this there are evening instructions in war time meals, and advanced courses in domestic science offered by the polytechnic institutes.

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[2] References to the literature are given by Denis, W.: Jour. Biol. Chem., 1917, **29**, 93.

[3] Bloor, W. R.: The Blood Lipoids in Nephritis, Jour. Biol. Chem., 1917, **31**, 575.

[4] Peabody, F. W.: Clinical Studies on the Respiration, II, The Acidosis of Chronic Nephritis, Arch. Int. Med., December, 1915, p. 955.

Medical Mobilization and the War

MEDICAL OFFICERS NEEDED BY NAVY

Surgeon-General Braisted of the United States Navy announces that the Navy has not yet reached its maximum in needs for commissioned medical personnel, and that it is still welcoming offers of service for such duty. THE JOURNAL will be glad to send to physicians who are interested in this service a circular of information, and application blanks.

RED CROSS ACTIVITIES IN ITALY

Temporary organization of Red Cross agencies in Italy to meet the present emergencies has been perfected. Carl Taylor has been installed as general manager in Rome, and Edward Ayre Hunt has been placed at the head of the civilian relief department.——Ambulance companies and other personnel have been transferred to Italy from France. Money has been appropriated for buildings in Genoa for receiving refugees, and the king has turned over his royal villa at Monzo, to refugees from the invaded regions of Italy.

ANTITUBERCULOSIS WORK IN FRANCE

The mission headed by Dr. Livingstone Farrand sent to France by the Rockefeller Foundation to combat the threatened increase of tuberculosis in that country will organize its work into three sections. It is planned to establish in one of the arrondissements in Paris and in certain large provincial towns organizations consisting of dispensaries, clinics and laboratories and provision for domiciliary attendance. This work will be under the direction of Dr. Miller. A second section under Dr. Charles White will undertake the distribution of assistance, and a third section under Professor Gunn will deal with publicity. This section has already begun its work in the organization of traveling exhibitions, meetings, kinematograph displays, etc.

REGULATIONS UNDER SELECTIVE SERVICE LAW

Section 151 B of the new selective service regulations concerns especially medical students and hospital interns registered under the law. It becomes effective December 15.

> "Except in the following cases, no registrant may enlist voluntarily in the military or naval service of the United States.
>
> "Under such regulations as the Surgeon-General may prescribe and on receiving permission from the Surgeon-General to do so, any medical student, hospital intern, dentist, dental student, veterinarian, or veterinary student may enlist in the enlisted reserve corps of the Medical Department, and thereafter on presentation by the registrant to his Local Board of a certificate of a Commissioned Officer of the Medical Department of the Army that he has been so enlisted, such certificate shall be filed with the Questionaire and the registrant shall be placed in Class V on the ground that he is in the military service of the United States. There is no other ground on which such persons (as such) may be placed in a deferred classification."

The effect of classification in Class V is to exempt or discharge from the draft. Regulations to carry out these paragraphs will be issued by the Surgeon-General. The effect of the new regulations will be to extend to first year medical students, after Dec. 15, 1917, essentially the same privileges in respect to Army service as are now enjoyed by students of the second, third and fourth year classes. The approval of the Surgeon-General will be granted to such students in well recognized medical schools only.

Since, under existing conditions, it is extremely unlikely that further calls for the present draft will be made before December 15, the fear expressed by first year medical students that they may not be able to continue their medical course is unwarranted, if they have not already been cited for the draft by their local board. In that case, the Medical Department has no authority.

NEWS OF THE BASE HOSPITALS

Base Hospital No. 30 Mobilized

Base Hospital No. 30, organized in the University of California Medical School, has been ordered to mobilize for the training of the enlisted personnel at Fort Mason, San Francisco. For this purpose it has been placed under the command of Col. Elmer A. Dean. Most of the officers of the organization have already had military training, and at present are in active service in various parts of the country. Those ordered for immediate mobilization with the unit are: Major Eugene S. Kilgore, director and chief of medicine; Capts. Jule B. Frankenheimer, Louis P. Howe and Arthur L. Fisher, and Lieuts. Malcolm Goddard, Hiram E. Miller and John M. Rehfisch.

The remainder of the official personnel are to be assembled when the organization is ready for foreign service. These include: Drs. Elbridge J. Best, Ernest H. Falconer, Arthur C. Gibson, C. R. Giles, Charles M. Richards, Howard E. Ruggles, Hudson Smythe, Charles L. Tranter, Herbert S. Thomson, William W. Washburn, Alanson Weeks, Nathan P. Wood, J. Homer Woolsey and Harold W. Wright.

NEWS OF THE TRAINING CAMPS

Fort Riley

The closing of the training camp at Fort Benjamin Harrison has brought a number of new men to Fort Riley. Lieut.-Col. William H. Tefft comes to take command of Evacuation Hospital No. 7, to which Major Don C. Peters from Camp Sheridan, Ala., has also been assigned. Major S. J. Turnbull from Fort Benjamin Harrison is in command of Hospital Train No. 24. Lieuts. D. C. Sherman, Albert V. Braden and G. L. Longworthy from Fort Benjamin Harrison are assigned to Evacuation Hospital No. 7; also Lieut. S. D. Bevill, who comes from Camp MacArthur, at Waco, Texas. Major Maurice H. Krebs has reported from Fort Benjamin Harrison as an instructor. Two motor driven evacuation ambulance companies have been organized to which have been assigned Capt. Harmon H. Ashley and Lieuts. George J. Culver, Theodore M. Wiersen and Frederick H. Spencer, all from Fort Benjamin Harrison.

QUARANTINE AT CAMP FUNSTON

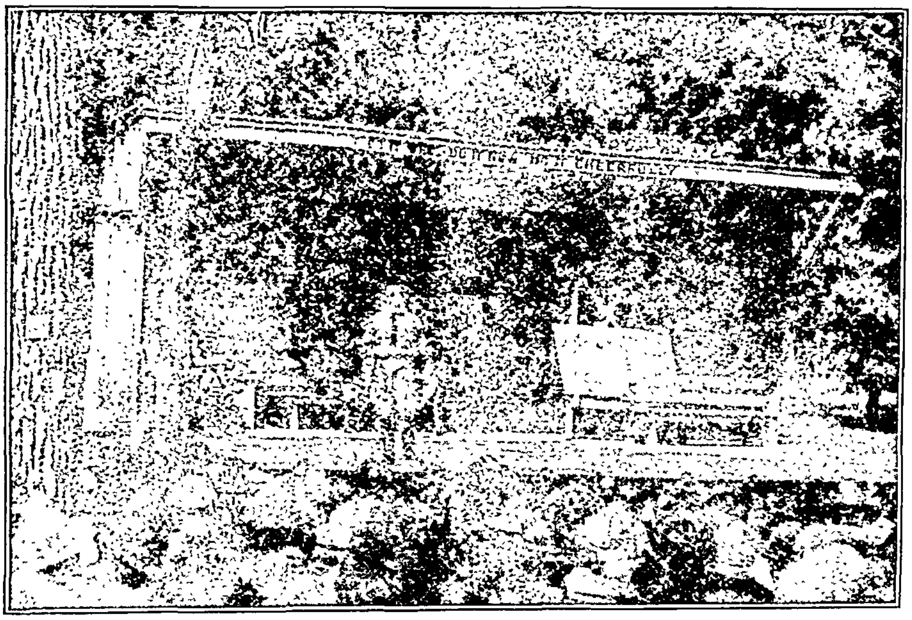
Dry weather still continues. Practically no rain has fallen since October 25. Heavy fogs every morning keep the dust down, but the days are clear and warm. Efforts to control dust-borne diseases, especially pneumonia and meningitis, have resulted in quarantining Camp Funston. All student officers and instructors at the medical officers' training camp have been forbidden to enter Camp Funston except on official business. At the same time, all officers and men at Camp Funston has been forbidden to use the street cars, or to attend moving picure shows, theaters, or dances at Junction City, Manhattan or Army City. An isolation camp has been established outside Camp Funston, in which have been placed all contacts, suspects and carriers. Active measures are being carried on for the sterilization of carriers, the prophylactic treatment of contacts and the improvement of hygienic conditions. Overcrowding in company barracks has been greatly reduced, and adequate ventilation is being enforced. As a result, meningitis is markedly diminishing in Camp Funston, and last week's report showed simultaneous falling off in pneumonia. So far, Fort Riley has escaped any meningitis invasion, and the number of cases of pneumonia have been small.

THANKSGIVING WEEK

But the real event of the week has been Thanksgiving. For the first time in years in most cases, and for the first time in their lives in some cases, medical officers spent Thanksgiving away from their families. Leave for seven days was given to half of the instructors, and to all student officers whose work was completed. Furloughs were given to 10 per cent. of the enlisted men. Many spent the day in Kansas City, Topeka and other nearby cities. But the majority of the men remained in camp. All classes were off, and all unnecessary work was discontinued. The Sunday and holiday routine was followed. True to American traditions, the principal function of the day was the Thanksgiving dinner. In each mess hall at 12 a bounteous meal was served, consisting of soup, roast turkey with oyster stuffing, mashed potatoes and gravy, celery and olives, green peas, tomatoes and other vegetables, mince and pumpkin pies, ice cream and coffee. The turkeys were a prime lot which had been brought to the reservation alive and fattened for several weeks. The mince pie was the real New England variety, and contained some ingredients that never were made in Kansas. In fact, one enthusiastic and well fed officer was heard to declare after dinner that his piece of pie was the first real drink he had had since he left home.

Sanitary Instruction at Fort Riley

In the past four months a project has been developed at the medical officers' training camp which we believe in many ways is unique in this country. This is a field sanitary laboratory (1) to train medical officers in the use and construction of the various types of sanitary apparatus which they might be required to construct in the field, and (2) to make a study of the different types of apparatus in current use, with a view to their betterment or the development of new and more efficient types. The laboratory is outdoors, occupying a considerable area of ground. A reserve corps medical officer in charge of an evacuation hospital may be called on to decide what he will do with the excreta, human and animal, of his organization. He may decide to burn it, as one solution of the problem. With no sewers, and no stream to help him out, he must dispose of the solid and liquid excreta of the thousand or more patients and soldiers for whose health he is directly responsible. The incineration of human excreta, especially when highly infective, requires special apparatus which must be constructed out of any materials available; that is, must be really "home-made," and yet must be perfectly efficient. After the regular course of lectures in hygiene and sanitation, the students are taken over in small groups to the laboratory and shown many of the approved types of apparatus for this purpose. These are carefully explained, often shown in operation, the relative merits of the different types elucidated, and the conditions under which one might be available, and another not available, thoroughly gone into. The question of manure may be be taken up. How is it to be disposed of and how is fly breeding to be prevented while it is being disposed of? The various methods of doing this are shown, and the apparatus, necessarily large and cumbersome, and the essential points of construction are explained. All of these have been made by the enlisted men, under the guidance of the director and his associates, and with no skilled mechanics to help. A large Panama railroad iron incinerator for manure was built. This involved the use of old rails, and something over ten tons were required. The Union Pacific lent some old rails, which had to be dragged by mules for several miles. These were drilled on the ground, U-bolts were made out of bar iron by the blacksmith of an ambulance company in his portable forge, nuts made from flattened horseshoes cut into squares were punched and threaded, and the whole was put up on six piers made from stone collected from the adjacent hill. This sort of work can be learned only by seeing the actual thing itself. Moreover, each class is now required to make drawings and actual plans of these pieces of apparatus, and a wholesome rivalry has grown up among the officers. Lately one can see a dozen or two officers with their camp stools perched in front of a field oven, a special latrine, an incinerator or what not, drawing away for dear life.



A lecture at the Medical Officers' Training Camp, Camp Greenleaf, Fort Oglethorpe, Ga. Major James B. Griffin, M. R. C., lecturing.

About forty pieces of apparatus have been constructed, and a considerable number are now on the road to completion. For the winter a large 50 foot tent has been set up on a frame and boarded in. Part of the work will be carried on there in inclement weather. At present a large apparatus for delousing clothing is nearly finished, and especial attention is being turned to the means of combating vermin in general.

The second purpose of the laboratory has been investigation, so far as this is possible with the faciities at hand. This has, however, already borne fruit in that a new incinerator, especially adapted to the needs of such organizations as a field hospital or evacuation hospital when immobile, has been devised, and has been put into successful operation. It is hoped it will develop into a standard type, especially since the waste heat is utilized, which means a great saving in fuel, which is so important under present service conditions. One other departure in the form of a portable latrine has been developed here, and many small improvements on existing apparatus. The exhibit was commented on favorably by the English and French commission when at Riley, and during the past week the commanding officer, Lieutenant-Colonel Bispham, has received instructions from Washington to have blueprints made of all exhibits and expedited to the Surgeon-General's Office. This will have been completed by the time this reaches our readers. The work will be carried on through the winter months and into new lines.

The director, Major Charles Spencer Williamson, M. R. C., and his associates, Capt. J. G. Shewbrooke, M. R. C.; Lieut. William E. Pretts, M. R. C., and Lieut. David Schmalhorst, M. R. C., are endeavoring to make the scope of the laboratory entirely practical, but governed by the same aims as any civil laboratory. At present, two modifications of a certain standard device are being tested, side by side, in respect to fuel consumption and rapidity of operation, so that when one type is recommended it will be on the basis of actual comparative experimental evidence.

The activities of the laboratory are quite diverse. Methods and apparatus for disposal of garbage, for delousing clothing, for disposal of manure, for prevention of fly breeding, for incineration of solid excreta, for disposal of sullage water, for destruction of flies, for preservation of food in the field, and for improvisation of field cooking apparatus are some of the subjects receiving attention.

NEWS OF THE CANTONMENTS

Thirty-First Division, Camp Wheeler, Macon, Ga.

Assistant Surgeon-General Rucker, U. S. P. H. S., visited the camp last week, while inspecting the work of the service in Macon and the area about the camp. The Public Health Service has been of great assistance by cleaning up the surrounding country, and especially by putting the dairies, ice cream factories, restaurants, etc., in a sanitary condition.

MEASLES

Our measles epidemic will soon be a thing of the past. The maximum number of cases was 1,201, and the greatest number of admissions in one day was 175. The epidemic began, October 22, was at its height, November 14, and was practically over by December 1. Of approximately 10,000 new men who came into the camp, 3,000 developed measles. It appears that the nonimmune in the draft men amounted to 30 per cent. of the whole. We are all glad now that the thing is over, instead of having it drag along for months, while we are on the way and in an inclement winter climate.

PNEUMONIA

The greater part of the pneumonia has been found among the new draft men, not in the old guardsmen. Major Zinser, M. R. C., has arrived from the Surgeon-General's Office to make a thorough epidemiologic study of pneumonia. Colonel Duncan asked this of the Surgeon-General when he was here. Both General Gorgas and Professor Welch thought it necessary and promised the help of the Surgeon-General's Office and the Rockefeller Institute in the study of pneumonia to its final analysis. Pneumonia stands in the same relation to the camp of 1917 that typhoid did to the camp of 1898. The origin and transmission must be elucidated as the origin and transmission of yellow fever, typhoid, meningitis and other epidemic diseases have been elucidated.

The whole division is now supplied with overcoats. This will surely reduce the amount of bronchitis, grip and pneumonia.

FOOD CONSERVATION

Captain Eddy, M. R. C., and three assistants are at work in the camp studying the conservation of food. It is to be noted that they will reduce the amount of waste, whether or not the ration can be safely reduced.

BASE HOSPITAL NOTES

Major Halsey arrived Saturday, November 24, to take charge of the medical service. Major Hans Zinsser is now chief of the laboratory staff. Major Black of the Surgeon-General's Office spent two days at the hospital and gave a very interesting and instructive talk. The staff has been augmented by the arrival of sixteen new officers, twelve of whom are quartered in framed pyramidal tents. The nursing corps was increased by the arrival of a "carload" Wednesday morning. Lieutenant Cook has returned from New Orleans after taking a special course in fracture surgery. There are at present under treatment in the hospital 991 patients.

ONE HUNDRED AND SIXTH SANITARY TRAIN

The ambulance service of the camp has received many compliments on the efficient service rendered. Ambulance Company No. 121, commanded by Capt. Robert Ashworth, Alabama, has been permanently detailed on this service with good results.

We are much pleased at the low sick rate we have been able to maintain in the train, having consistently maintained the lowest rate of any unit in the division, despite the fact that during the recent epidemic of measles our men worked longer hours and were subjected to more general exposure than those of other units. Lieutenant Plante of the British Army lectured to the medical officers' class recently and gave many valuable tips and suggestions which we hope will prove helpful when we reach the trenches. Captain Crupper, Infantry, British Army, will talk to the medical officers' class on medical organization as carried on on the western front.

Thirty-Fifth Division, Camp Doniphan, Fort Sill, Okla.

SANITARY POLICE

The most important development of the past week was the establishing of a sanitary police, under control of the division surgeon, for the city of Lawton. For some time there has been a growing feeling that the insanitary conditions in the city of Lawton would sooner or later mean trouble both for that community and for the soldiers that go to Lawton. The facilities of Lawton to meet the wants of the military population of Camp Doniphan, more than twice the population of the city of Lawton itself, were obviously inadequate. The ambitious vender who would sell "red hots" and soft drinks to soldiers that were eager to get a variation from the regular camp mess did a flourishing business, in which the exchange of his wares for the good cash of the soldiers was the primary consideration, rather than the care and cleanliness with which the food was prepared.

The important work of regulating and controlling the situation has been detailed to Major W. S. Lawrence, M. C., N. G., who has been made assistant health commissioner for the city of Lawton. Under his immediate supervision, there has been established a first-aid station where venereal prophylaxis is given. There has been established also a municipal isolation hospital where the city's cases of contagious diseases will hereafter be treated. Aside from the military police, Major Lawrence will have the assistance of two experienced sanitary inspectors furnished by the state board of health.

Possibly for the first time in their existence the hotels and restaurants of Lawton have been asked to clean up and maintain cleanliness in their kitchens. Since the order to clean up will be controlled by the stationing of military police at the door of the establishment that fails to comply with the order, there can be no doubt that the orders will be promptly complied with. Drs. Duke and Sapper of the state health office have been in conference with Major Lawrence, the city officials and leading business men of Lawton, and the combined efforts of these men, no doubt, will succeed in providing for Lawton the long needed sanitary improvement.

DISEASE INCIDENCE

There were but two deaths to record for the past week, one from meningitis and one from pneumonia, the latter following a case of typhoid fever. The latter case is of interest in that the patient had received his last immunization against typhoid and paratyphoid one week before the development of his illness. All together, the health of the camp is very good, the morbidity rate, inclusive of injuries, being just a fraction above 3 per cent.

CARDIOVASCULAR EXAMINATIONS

Capt. Ralph C. Brown, M. R. C., has completed his work on cardiovascular conditions; a total of 487 cases were examined by him. Of these men, 354 were accepted and sixty-seven rejected; sixty-six were conditionally accepted for special service and will be transferred to the base hospital, where they will be under further careful observation and where tracings will be made to determine more fully their condition. Captain Brown reports that the majority of rejected patients showed mitral stenosis. This is rather interesting, since most of these men had been subjected to physical examination two or three times before they were brought before the cardiovascular board. Among other interesting findings of this board are a case of transposition of the viscera, and one of traumatic aneurysm of the carotid artery, following injury to this vessel from a stab wound.

PERSONAL NOTES

Capt. Ralph C. Brown, M. R. C., of the cardiovascular board, returns to Chicago, going temporarily on the inactive list until Base Hospital No. 13, of which he is a member, is ordered out.

Lieut. J. W. Follin, sanitary engineer, has been added to the staff of the division surgeon.

Seventy-Seventh Division, Camp Upton, Yaphank, N. Y.

During the past three weeks many promotions have been announced in the medical personnel of this division. In the new base hospital the services have now been well organized, and in many instances specialists of international reputation have taken charge of their respective special departments.

DISEASE INCIDENCE

We have thus far been singularly fortunate with our pneumonia patients. They have not been numerous, and there have been no deaths, a result which appears to be largely due to the early employment of the Cole serum. Most of our cases seem to be of the Type I infection, which is fully recognized to respond most satisfactorily to this method of treatment. Highly mixed infections have not been frequent, doubtless also accounting largely for our good fortune thus far.

The death of Major Richard Weil, who was intimately known to many of the workers at this cantonment, has been much regretted by all members of our staff.

Our good fortune in regard to the contagious diseases has been thought to be largely due to the fact that we have thus far drawn our recruits chiefly from a dense urban population in which, naturally, the susceptible material has passed through these standard infections in large part before coming to the cantonment. It is difficult otherwise to account for our very small percentage of measles, mumps and diphtheria. Only a single case of the last mentioned contagion has appeared at the base hospital, and our few sporadic cases of mumps have thus far shown nothing of an epidemic character. In the past the same statement was true also of measles, which has been such a serious factor in some camps, particularly in those drawing their material from a largely rural population. The recent assignment of colored troops from the South to Camp Upton bears out in a very striking way this assumption. Among the colored troops from New York City and its environs, now numbering several thousand, not a single case of measles or mumps has developed; but in a small battalion of those from the South, ten cases of measles and two of mumps appeared within the first week. Rigid quarantine measures have been enforced, however, and it is hoped that in this way we may at least prevent the spread of these diseases to other troops.

PSYCHOLOGIC TESTS

An interesting side light on the question of the alleged conscientious objector has been developed by the findings of a psychiatric board composed of Major Hammond, Captain Rosanoff and Lieutenant Pearse. Excluding those who for natural, national and entirely honorable reasons desire to evade service in our Army, this board found that nearly 90 per cent. existed in instances of clear mental disease or degenerates. It is regrettable that public examinations of this character of the nonmilitary population cannot be conducted, and that the defectives of this type outside as well as within the Army should be confined in asylums or similar public institutions.

MENINGITIS

A single and early fatal case of epidemic cerebrospinal meningitis has appeared in the camp. Apparently the case originated from an extramural infection, and thorough examination of all contacts has disclosed no carriers as yet.

ANTHRAX

A somewhat unusual case of anthrax was discovered in which the clinical diagnosis was that of a septic meningitis, possibly epidemic. Lumbar puncture showed the cerebrospinal fluid to be turbid with a growth of anthrax bacilli. Postmortem examination showed the infection to have probably been of intestinal origin, although one skin lesion suggested the possibility of inoculation through this avenue. This also seems to have been acquired outside the encampment.

NOTES

The weekly meetings of the Upton Medical Society have been largely attended, and the programs have been of a very high and instructive character. Major E. K. Dunham gave us a most interesting illustrated talk on the newer methods of antisepsis. Major Thomas Darlington discussed fatigue. Lieutenant Pelitier of the Medical Corps of the French army gave a most interesting lecture, illustrated by lantern slides of the Carell-Dakin method of treatment of surgical injuries and wounds. Dr. Haven Emerson, commissioner of health for New York, discussed the subject of tuberculosis, chiefly from a statistical standpoint and concerning its methods of propagation, especially as applied to such compact communities as the military camp. Next week the medical society is to be addressed by W. H. Park, director of the Research Laboratories of the New York Board of Health.

Among the distinguished medical visitors of the camp have been Rufus Cole, Alfred Kohn and A. R. Dochez from the Rockefeller Institute.

Eighty-Fourth Division, Camp Zachary Taylor, Louisville, Ky.

Orders have been received regarding equipment and baggage that may be taken by troops designated for duty with expeditionary forces in Europe. Each officer below the grade of major, and each contract surgeon, acting dental surgeon and acting veterinarian may have baggage not to exceed 250 pounds. This allowance includes Equipment C, professional books and all necessary clothing and bedding for extended field service. Containers for personal baggage for the above named officers shall be the standard trunk locker and bedding roll or similar containers of their approximate equivalent volume. Mosquito bars, head nets and khaki clothing will not be taken.

PSYCHOLOGIC TESTS

More than 10,000 men have been given the intelligence tests by the psychologic board that is now sitting at Camp Zachary Taylor. The board is headed by Lieut. Marion R. Trabue, chief examiner, formerly engaged in psychologic work at Columbia University. Other members are Lieut. Clarence S. Yoakum, University of Texas; Lieut. Heber S. Cummings, Kansas Agricultural College; Lieut. Edgar A. Doll, Cornell University; Dr. Eugene C. Rowe, Michigan Normal School; Dr. James W. Bridges, Ohio University; Calvin P. Stone, Jeffersonville Reformatory, and John K. Norton and J. David Houser of Leland Stanford Junior University.

The men are graded after examination by scores ranging from zero to 414, and are arranged into five grades, from A to E. For a man to make Grade A, his score must be between 300 and 414. This is known as the very superior grade, and the Grade A men are characterized as being skilled in abstract thinking. Grade B ranges between 250 and 299. This is the superior grade, and the one usually made by the typical officer. Grade C is the "average" grade, ranging from 100 to 249. This grade is usually made by the typical private. Grade D consists of the unskilled laborer class, is called "Inferior," and is from 50 to 99. The lowest is E, with scores ranging from zero to 49. These men are classed as "very inferior," and are dull, ineffective or feebleminded or nearly so. The majority of men of this class are recommended for discharge on account of deficient mentality.

The examinations are conducted in an unoccupied ward of the base hospital, an entire company being put through at one time. The examination is made out on a printed pamphlet consisting of about twenty pages. Each man is given a pamphlet and pencil, and is told what to do in each test by an instructor. The man must put a cross in the largest of a row of squares printed across the sheet, all different sizes, but nearly the same. He must at a glance underline the highest and lowest row of figures; take dictation of numbers and sentences, etc. The illiterates and others who fail at the written examination are given individual examinations to show their mechanical sense and skill. They are given bells and locks in pieces to be put together. If they do not show any mechanical skill, they are given the various tests used at institutions for the feebleminded and at emigrant stations. Failing these simple tests, the man is rated as being deficient in mentality and is discharged. In one group of 300 examined, the board found ten imbeciles. One private made the highest grade recorded, 409 out of a possible 414. All officers will be examined, and are expected to make 250 or over.

At Camp Lee, where the medical officers were examined, several were found to have made only "average" grades. The medical officer in command found on investigation that the men who had made the low marks had consistently bungled up paper work. They were watched more closely, and if they did not show any sign of improvement, they were discharged. At this camp the officers in the Engineering Corps ranked highest in the intelligence tests, followed by infantry, quartermaster and medical officers last.

Contrary to general belief, no amount of study seems to improve the men's grade. If given the same test two years from now, they would make practically the same grades, and they are believed to show completely the capability of the brain.

This rating of the men will be of great advantage to the officers. The quick thinkers can be chosen for important pieces of work. While some man may have a high grade from an intelligence test, he may not make a good soldier, as he may be both physically and morally wrong. The results are carefully checked over, and a form is made out with a complete list of names of each company with a man's grade opposite his name. A regimental list is also made out for the division commander. The board will probably complete its work by January 1, when it will probably be ordered to another camp.

It is believed here that the results of the intelligence tests will influence the selection of candidates for the next officers' training camp.

MEASLES

Measles has spread to nearly every company of the Three Hundred and Thirty-Fifth Infantry, composed mostly of men from southern Indiana, all but two companies being quarantined. Most of the patients have been taken to the base hospital, while the men with milder cases are kept in the regimental hospital.

Two Y. M. C. A. secretaries have gone into voluntary quarantine in order to serve the men in the two quarantined regiments.

BASE HOSPITAL

There are now 681 patients in the base hospital, sixty-three with wounds and injuries. With venereal diseases there are now on duty 363 gonorrhea patients, twenty-three syphilis, and nineteen chancroid patients. New measles cases, twenty-two in all, were reported during the week from eight different organizations. The total percentage of sick was 3.74 or, omitting "wounds and injuries," 3.31. The division comprises 24,716 men at present, with 1,034 reported sick. The total number received to date has been 27,000, and 2,017 have been discharged by the reviewing board. The tuberculosis board has been actively at work, examining each officer and drafted man. Pulmonary tuberculosis has caused a large proportion of the rejections, several of those rejected being officers. Trachoma has also caused a large number of rejections, most of these patients being from eastern Kentucky counties. Few patients with primary syphilis are being rejected, these being now treated at the camp. Men with tertiary cases are rejected.

Eighty-Fifth Division, Camp Custer, Battle Creek, Mich.

The most interesting event of the past week was the visit of Colonel Chamberlain of the Surgeon-General's Office. He made a complete inspection of all departments of the sanitary troops.

Major Edwards, the new sanitary inspector, is rapidly developing the plans of sanitation necesary for the well-being of the camp. He is particularly anxious to obtain the proper air space, floor space and head space in the various barracks so that the men in their sleeping quarters will have the proper ventilation. The fact that there is a minimum amount of pneumonia in the division speaks for the results of this plan of ventilation.

THREE HUNDRED AND TENTH SANITARY TRAIN

There is much of interest in the activities of the sanitary train. Football, basketball, orchestra, minstrel shows all make the long evenings pleasant for the men.

The field hospitals and ambulance companies are working in conjunction with each other in their plan of training. The ambulance companies are setting up dressing stations and are operating between the trenches and the field hospital which is set up a mile or two from the dressing station ready for action in every particular, each department fully equipped and ready for work.

The night time is being utilized for the purpose of training. It is understood that the wounded are transported at night. Major Jackson, director of ambulance companies, has worked out an original idea of training ambulance drivers to drive at night without lights. He works out his scheme by having the eyes of the drivers covered so that they cannot see, and then instructs them in feeling their way along the road. The major figures that they can learn conditions of the road and locations much in the same manner as the blind utilize their other senses in determining location. The men of the various companies are enjoying this night work tremendously, and are becoming proficient in doing all the work, such as tent pitching and striking and road work, as well as they do by daylight. One of the most difficult problems to teach men is definite location at night without the use of a compass. They are taught to work out directions so that becoming lost or walking around in a circle is practically impossible.

Eighty-Seventh Division, Camp Pike, Little Rock, Ark.

Camp Pike is receiving rapidly its quota of troops from the northern cantonments. These men are as a class robust, ruddy-cheeked, and physically fit. There is little evidence of an undernourished condition or of hookworm and anemia, a state of affairs widely prevalent among the men first received at this place.

The time-honored custom of "passing the buck" has not been entirely eliminated in this connection, a certain percentage of these northerners being in a physical condition warranting their discharge rather than their transfer to Camp Pike. Some of these drafted men who intentionally or through accident just prior to draft became unfit were sent on anyway and have been crippling about the camps for some time. These men are unfit for drill, and unless they can do office work, cannot be trained to any extent. A recent order from the War Department has been issued expressly for the purpose of stopping this practice. It is to the effect that whenever a county or parish sends up a man who proves to be unfit for military service, the man shall be returned to the board sending him and the board required to send up another man who is fit. A special board of examiners is now on duty at the base hospital for the purpose of expediting the return of these men to their respective boards. Lieut. John Thorpe, Chicago, who is at present attached to the Three Hundred and Twelfth Sanitary Train, is assisting the division surgeon in this work.

BASE HOSPITAL AT FORT LOGAN H. ROOTS

Fort Logan H. Roots, which is about 3 miles distant from Camp Pike, has been designated as the site of a base hospital of 500 beds, to supplement the base hospital at Camp Pike. Lieut.-Col. George F. Jueneman of the Medical Corps is to be in command. In order to build at Fort Roots a hospital of this size, it will be necessary to utilize the brick barracks at this post. The post hospital at Fort Roots was used as a base hospital for Camp Pike during the early days of the construction work at the camp. The location is ideal, Fort Roots being situated on a high bluff overlooking the Arkansas River.

Lieut. E. J. Wentworth, of the orthopedic staff at the base hospital, concluded his course of lyceum lectures with two lectures on the spine. Lieutenant Wentworth spent some time emphasizing the fact that medical officers should strive always to assume the "posture of a soldier." He said the criticism had often been made by line officers that too many of the medical officers did not "look or act like soldiers." Lieutenant Wentworth's lecture were followed by one by Major McKenna of the base hospital, formerly of Chicago, on surgery of the bones and joints. The lecture was illustrated with fifty-two lantern slides which showed what might be accomplished in the work on the joint cavities. One of the most interesting and entertaining lectures given at the lyceum course recently was one by Major Amos Gale Straw of Boston, who is in charge of the roentgen-ray department in the base hospital at Camp Pike. This lecture was general in character, and dealt with Major Straw's nine months' experience in an evacuation hospital in France. One of the major's amusing experiences was that of being continually mistaken in England for the noted movie actor, the late John Bunnie.

The following assignments of commanding officers have been made in the sanitary train: Major R. H. Davies, director of field hospitals and assistant adjutant of the Three Hundred and Twelfth Sanitary Train; Capt. Paul R. Howard, director of Field Hospital No. 345; Lieut. Charles D. Mason, director of Field Hospital No. 346; Capt. William Carstophen, director of Field Hospital No. 347, and Capt. James Slack, director of Field Hospital No. 348. In the ambulance companies, Capt. Nolan Stewart is in command of No. 345; Capt. John B. Steele of No. 346; Lieut. Charles Lerrigo of No. 347, and Capt. Thomas McCabe of No. 348. The first three field hospitals and the first three ambulance companies are motor drawn; the fourth field hospital and the fourth ambulance company are animal drawn.

HEALTH OF THE CAMP

Health conditions at Camp Pike are in the main very good. There has been some cerebrospinal meningitis lately, the focus of infection apparently being some troops brought from a northern cantonment.

Eighty-Ninth Division, Camp Funston, Fort Riley, Kan.

ISOLATION CAMP

An isolation camp has been instituted at Camp Funston for all men who have been in contact with patients that have developed contagious or infectious diseases here. The camp is located on the Pawnee flats of the Fort Riley Reservation, and consists of tents with wooden floors and sides. The training of the isolated men, none of whom are actually sick, will proceed just the same as though they were with their organizations, as far as this is practicable. Provisional companies are being formed from men belonging to the same regiments or organizations, and these men drill as units, being carefully watched for any symptoms of disease that might develop. The colored troops have a separate portion of the camp from the white troops. The camp is under the supervision of Lieut.-Col. Frank Weed, and is officered by members of the One Hundred and Sixty-Fourth Depot Brigade. The cooks and kitchen police are also from the depot brigade, none of the "contacts" being allowed in the kitchens. Food is cooked here and carried by the men of the different groups to their tents to be eaten.

Mumps contacts, measles, meningitis carriers, meningitis contacts, tonsillitis, diphtheria, scarlet fever, and epidemic conjunctivitis contacts are all in separate groups and are not allowed to intermingle.

When the actual contacts can be ascertained, this arrangement will prevent whole companies from being quarantined, which has been the necessary and established procedure until this time.

SEARCH FOR CARRIERS

As an additional sanitary measure, cultures are being made from the throats of all men in the search for carriers. Enough men have been removed from all barracks where there are not 500 cubic feet of air per man to give the correct allowance. Beds are so arranged that the foot of one bed is opposite the head of the bed at the side of it, thus aiding in preventing droplet infection from sneezing or coughing at night. Beds must be at least 18 inches apart. An officer also inspects each barracks at midnight to see that a sufficient number of windows are opened.

DISEASE INCIDENCE

All of the diseases of the camp show a declining incidence, with the exception of measles, mumps and pneumonia. I am not permitted to give official figures.

HEALTH OF EXTRA CANTONMENT ZONE

The nearby towns of Junction City and Manhattan have become somewhat alarmed over the situation, as the result of rumors that have been fallaciously spread which are probably distorted accounts about the necessity of our sanitary precautions. They talked about quarantining soldiers from these towns, but finally reconsidered. All soldiers of the cantonment have already been prohibited by order from going to movies, attending church socials, or in any way congregating into large groups, among which may be carriers. Two cases of meningitis have developed in Manhattan and one in Junction City. As a precaution, the throats and noses of all workmen who live in these towns are being sprayed daily with dichloramin-T, the same treatment that is given the soldiers.

DISEASE CONDITIONS AMONG TROOPS IN THE UNITED STATES

Extracts from Telegraphic Reports Received in the Office of the Surgeon-General for the Week Ending Nov. 23, 1917

1. Total strength of Troops in United States as reported....1,067,698
   Annual admission rate per 1,000 (disease only)........ 1,619.8
   Non-effective rate (all divisions)...................... 38.6
2. *National* Guard, strength (Divisions in United States) 403,573
   Annual admission rate per 1,000 all divisions (disease only) 1,732.9
   Non-effective rate all divisions (all causes) 44.5

Divisions showing admission rate for disease higher than average: Camps Bowie, Wheeler, Beauregard, Kearney, Sevier, Cody, Doniphan and Shelby.

Divisions showing *non-effective* rate all causes higher than average: Camps Bowie, Beauregard, Wheeler, Sevier, Kearney, Shelby, Cody and MacArthur.

3. National Army, strength (Divisions in United States)......426,310
   Admission rate per 1,000 all divisions (*disease only*).... 1,444.6
   Non-effective rate all divisions (all causes) 30.7

Divisions showing admission rate for disease higher than average: Camps Travis, Jackson, Funston, Pike, Dodge, Dix and Lewis.

Divisions showing non-effective rate all causes higher than average: *Camps Pike*, Funston, Jackson, Travis, Lewis and Dix.

4. Venereal Disease—
   Annual admission rate Regulars in United States........... 146.1
   Annual admission rate National Guard (Divisions in U. S.).. 68
   Annual admission rate *National* Army (Divisions of U. S.)... 69

National Guard Division having rate above average: Camps Doniphan, Bowie, Logan, Beauregard and Wheeler.

National Army Division having rate above average: Camps Jackson, Dix, Travis and Gordon.

5. Number of cases of pneumonia 616
   Highest number in any one division ....*(31st Division)* 150
   Number *of* cases of meningitis 77
   Highest number in any one division ....(89th Division) 20

6. NEW CASES OF SPECIAL DISEASES REPORTED DURING THE WEEK ENDING NOV. 23, 1917

Division	Pneumonia	Dysentery	Malaria	Venereal	Paratyphoid	Typhoid	Measles	Meningitis	Scarlet Fever	Strength of Command
27th, Wadsworth..	2	...	...	15	...	...	....	...	...	31,882
28th, Hancock.....	3	...	...	13	...	...	....	...	...	28,759
29th, McClellan....	5	...	4	12	...	1	17	1	...	26,503
30th, Sevier........	97	...	2	17	...	...	802	5	...	27,385
31st, Wheeler......	150	2	15	31	...	...	496	3	...	22,759
32d, MacArthur..	1	...	...	11	...	...	93	...	3	26,661
33d, Logan.......	13	3	4	64	...	...	4	1	...	32,899
34th, Cody........	7	...	1	14	...	...	226	...	...	25,673
35th, Doniphan....	19	...	...	171	...	...	66	4	7	25,601
36th, Bowie........	36	...	...	56	...	...	1038	2	...	27,749
37th, Sheridan.....	4	...	1	16	...	2	30	1	1	24,104
38th, Shelby.......	14	2	4	33	...	...	454	3	...	29,268
39th, Beauregard..	68	...	10	30	...	...	738	4	...	20,987
40th, Kearney.....	5	...	2	13	...	...	95	5	1	24,549
41st, A. L. Mills...	9	...	...	22	...	...	72	...	4	28,811
76th, Devens.......	2	...	...	34	...	...	11	...	...	27,025
77th, Upton.......	2	...	...	11	...	...	....	1	...	25,444
78th, Dix..........	...	...	...	49	...	...	....	...	...	16,701
79th, Meade.......	4	...	...	10	...	...	14	...	...	33.301
80th, Lee..........	9	...	3	38	...	1	75	...	...	35,036
81st, Jackson.....	4	1	4	143	...	...	528	1	...	17 341
82d, Gordon......	2	...	...	57	...	...	125	3	...	33,000
83d, Sherman.....	6	1	...	41	...	...	13	...	1	32,569
84th, Taylor.......	10	...	...	8	...	...	107	10	...	24 019
85th, Custer.......	1	...	...	9	...	...	41	...	...	20,773
86th, Grant........	4	...	...	24	...	...	2	1	...	22,569
87th, Pike.........	51	1	...	12	...	...	201	6	20	22,273
88th, Dodge.......	12	1	...	22	...	...	17	...	5	21,917
89th, Funston......	20	...	...	17	...	...	204	20	3	28,649
90th, Travis.......	26	1	10	70	...	1	....	...	...	20 962
91st, Lewis........	8	...	...	21	...	...	33	4	1	35,167

7. ANNUAL RATE PER THOUSAND FOR SPECIAL DISEASES

	Regulars, U. S. Army, in U. S. only, 1916	Regulars in U. S., Week Ending Nov. 23, 1917	National Guard, All Camps, Week Ending Nov. 23, 1917	National Army, All Camps, Week Ending Nov. 23, 1917	American Expeditionary Forces, Week Ending *Nov. 16*, 1917
Pneumonia............	2.59	9.1	55.7	19.6	7.2
Dysentery............	3.97	0.8	0.9	0.6	0.0
Malaria...............	12.52	1.7	5.4	2.0	0.9
Venereal..............	91.00	165.1	68.0	69.0	81.1
Paratyphoid..........	0.31	0.0	0.0	0.0	0.0
Typhoid..............	0.21	0.0	0.4	0.2	0.0
Measles..............	20.29	51.7	533.6	167.2	31.5
Meningitis...........	0.59	1.1	3.7	5.6	0.0
Scarlet fever........	0.59	1.1	2.1	3.6	1.3

ORDERS TO OFFICERS OF THE MEDICAL CORPS

Lieut.-Col. ROBERT H. PIERSON, relieved at Camp Travis, Fort Sam Houston, Tex., and *to Camp Logan*, for duty as Division Surgeon.

Major HENRY P. CARTER, relieved at Camp Lee, and *to Camp Logan*, Houston, Tex., for duty as Division Sanitary Inspector.

Lieut.-Col. ROBERT L. CARSWELL, relieved at Fort Sam Houston, Tex., and *to Camp Greene*, Charlotte, N. C., for duty as Division Surgeon.

Major ISAAC W. BREWER, relieved at Fort Ethan Allen, Vt., and *to Camp Greene*, Charlotte, N. C., for duty as Division Sanitary Inspector.

Lieut.-Col. WILLIAM R. EASTMAN, relieved at Fort Clark, Tex., and *to Camp Greene*, Charlotte, N. C., for duty as Division Surgeon.

Col. FRANK R. KEEFER, relieved at the Hawaiian Dept. and *to San Francisco, Calif.*, to report in person to the commanding general, Western Dept. for assignment to duty.

Lieut.-Col. HORACE D. BLOOMBERGH, relieved at the Hawaiian Dept. and *to San Francisco, Calif.*, to report in person to the commanding general, Western Dept., for assignment to duty.

Major FRANK W. WEED, relieved at Camp Funston, Fort Riley, Kansas, and *to Camp McClellan*, Anniston, Ala., for duty as division surgeon.

Major CHESTER R. HAIG, relieved at Camp Sheridan, Montgomery, Ala., and *to Hoboken, N. J.*, for duty with hospital to be organized at Hoffmans' Island.

Col. DEANE C. HOWARD, to the following-named camps for the purpose of inspection and on completion to his proper station, *Camp Funston*, Fort Riley, Kan.; *Camp Beauregard*, Alexandria, La.; *Camp Pike*, Little Rock, Ark.; *Camp Sevier*, Greenville, S. C.

Major EDGAR KING, *to Camp May, N. J.*, to inspect a hotel building under consideration for use as a hospital and on completion will return to his proper station.

Col. EDWARD R. SCHREINER, now on duty at the U. S. Army General Hospital, No. 1, Williamsbridge, N. Y., be assigned in addition to his other duties, as lecturer on military medicine and surgery at the Columbia University, New York City.

Col. HENRY C. FISHER, from Camp Wheeler, Macon, Ga. *to Camp Joseph E. Johnston*, Jacksonville, Fla., to inspect and recommend sites for a base hospital at that place.

Major SAMUEL S. CREIGHTON, *to Camp Logan*, Houston, Tex., for temporary duty in connection with instruction of the Medical Dept. and upon completion to return to his proper station.

Col. WILLIARD F. TRUBY, relieved at Leon Springs, Tex., and *to Fort Sam Houston*, Tex., for duty in the office of the Dept. Surgeon.

ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

Alabama

To Camp Beauregard, Alexandria, La., for duty, from Fort Oglethorpe, Lieut. JAMES H. PHILLIPS, Dora.

To Camp Dix, Wrightstown, N. J., base hospital, Lieut. GEORGE C. KILPATRICK, Mobile.

To Camp Greene, Charlotte, N. C., Third Division Headquarters Military Police, from Camp Greenleaf.

To Camp Wheeler, Macon, Ga., base hospital, from Camp Greenleaf, Lieuts. THOMAS K. LEWIS, JOHN D. SHERRILL, Birmingham.

To Fort Oglethorpe, Ga., for instruction, Lieut. CHARLIE H. CHAPMAN, Geneva.

To Hoboken, N. J., for duty, from Fort Oglethorpe, Lieut. GROVER C. HAMILTON, Birmingham.

To Philadelphia, Pa., Evans Dental Institute, for instruction, from Newport News, Va., Capt. MACK ROGERS, Birmingham.

To Philippine Dept. for duty, from Camp Dix, Lieut. MANNIE A. FORT, *Grand Bay.*

To his home and the inactive list from Camp Wheeler, Lieut. ALBERT S. ZIMMERMANN, *Larkinsville.*

Arizona

To Fort Oglethorpe, Ga., for instruction, from Camp Cody, Lieut. ROGER V. PARLETT, Whiteriver.

Arkansas

To Camp Kearney, Linda Vista, Calif., base hospital, from Fort Oglethorpe, Lieut. JAMES W. RAMSEY, Jonesboro.

To Camp Shelby, Hattiesburg, Miss., base *hospital, from Fort* Riley, Lieut. FRED S. WATSON, Amity.

To Camp Sherman, Chillicothe, Ohio, base hospital, from *Fort* Benjamin Harrison, Capt. SCOTT C. RUNNELS, Little Rock.

To Montgomery, Ala., Aviation Mobilization *Camp, for duty, from* Fort Riley, Lieut. WYLIE R. FELTS, Judsoma.

California

To Camp Kearney, Linda Vista, Calif., base hospital, Capt. BYRON P. STOOKEY, Los Angeles; Lieut. *HARRY E.* FOSTER, Berkeley.

To Camp Lewis, American Lake, Wash., base hospital, *Lieut.* FREDERICK A. COLLER, Los Angeles.

To Camp Meade, Annapolis, Md., base hospital, *from Post-Graduate* Medical School, New York City, Lieut. THOMAS R. PETCH, Eureka.

To his home and honorably discharged from Camp Kearney, Lieut. CHARLES H. FREEMAN, Oakland.

To the inactive list, from Fort *Oglethorpe*, Lieut. ANDREW B. WESSELS, San Diego.

Canal Zone

To Fort Oglethorpe, for instruction, from Army Medical School, Lieut. WILLIAM B. FOSTER, Jr., Ancon.

To Walter Reed General Hospital, Takoma Park, D. C., for duty, from treatment at the Walter Reed General Hospital, Major WILLIAM A. DUNCAN, Ancon.

Colorado

To Camp Bowie, Fort Worth, Texas, base hospital, Capt. LEWIS B. McKINNIE, Colorado Springs.

Honorably discharged on account of being physically disqualified for active service, Lieut. LOUIS A. PACKARD, Denver.

Connecticut

To Army Medical School, Washington, D. C., for orthopedic instruction, from Camp Bartlett, Lieut. WILLIAM F. COLLINS, New Haven.

To Camp Funston, Fort Riley, Kan., Eighty-Ninth Division for duty, from Fort Benjamin Harrison, Lieut. EDWARD J. HOWLAND, Colchester.

To Camp Travis, Fort Sam Houston, Tex., for duty, from Fort Oglethorpe, Lieut. ARTHUR F. McDONALD, Waterbury.

To Camp Upton, L. I., N. Y., as member of board for examination of command for tuberculosis, from Walter Reed General Hospital, Lieut. RAYMOND V. QUINLAN, Meriden.

To Camp Wheeler, Macon, Ga., base hospital, from Fort Oglethorpe, Lieut. GEORGE H. DALTON, New Britain.

To Hoboken, N. J., for duty, from Fort Oglethorpe, Lieut. SYDNEY V. KIBBY, Hartford.

To *New Haven, Conn.,* for duty as a medical member of examining board and recruiting officer, Lieut. JAMES A. HONEIJ, New Haven.

To New York City, Neurological Institute, for intensive training in brain surgery, Capt. DANIEL C. PATTERSON, Bridgeport; from Psychopathic Hospital, Boston, Capt. OTTO G. WIEDMAN, Hartford.

To Philadelphia, Pa., Evans Dental Institute, for instruction, from Camp Greenleaf, Lieut. WATERMAN LYON, New Britain.

To Portland, Ore., for assignment to duty with aero squadrons from Fort Riley, Lieut. WILLIAM P. BALDWIN, New Haven.

To the inactive list, from Fort Oglethorpe, Lieut. GEORGE P. CHENEY, New London.

Delaware

To Montgomery, Ala., Aviation Mobilization Camp, for duty, from Fort Oglethorpe, Lieut. BRUCE H. BEELER, Wilmington.

District of Columbia

To Army Medical School, Washington, D. C., for instruction in orthopedic work, Lieut. JOHN A. TALBOTT, Washington.

To New York City, for a course of instruction in urology, from Pittsburgh, Lieut. IVY A. PELZMAN, Washington.

To Washington, D. C., for duty in the Surgeon-General's Office, Capt. SCOTT D. BRECKINRIDGE, Washington.

Florida

To Camp Bowie, Fort Worth, Texas, for duty, from Fort Oglethorpe, Lieut. HARPER L. PROCTOR, Jacksonville.

To Camp Greene, Charlotte, N. C., Headquarters Military Police, from Camp Greenleaf, Lieut. SHORES E. CLINARD, Gretna.

To Hoboken, N. J., for duty, from Fort Oglethorpe, Lieut. JOHN C. HOLLEY, Pace.

To report to the Commanding General, Southeastern Department, for assignment to duty, from Chickamauga Park, Ga., Lieut. T. Z. GASON, Jacksonville.

Georgia

To Atlanta, Ga., Aviation Section, Signal Corps, Emory University, for duty, Lieut. ERNEST S. COLVIN, Atlanta.

To Camp Greene, Charlotte, N. C., Headquarters Military Police, from Camp Greenleaf, Lieut. RUFUS T. GRAHAM, Stillmore.

To Camp Wheeler, Macon, Ga., Headquarters Military Police, from Fort Oglethorpe, Lieut. JAMES H. MacDUFFIE, Jr., Columbus.

To Fort Logan H. Roots, Ark., for temporary duty, from Camp Greenleaf, Lieut. BENJAMIN H. MINCHEW, Waycross.

To Montgomery, Ala., Aviation Mobilization Camp, for duty, from Fort Oglethorpe, Lieut. EARL K. LAZENBY, Camak.

To Rockefeller Institute, New York City, for instruction in pneumonia, and on completion to Camp Gordon, base hospital, Lieut. JAMES H. BUTLER, Augusta.

Idaho

To Camp Wheeler, Macon, Ga., Thirty-First Division, as member of board for examination of command for tuberculosis, from Camp Doniphan, Lieut. CLYDE E. WATSON, Nampa.

Illinois

To Ann Arbor, Psychopathic Hospital, for intensive training in his specialty, from Fort Benjamin Harrison, Lieut. CARL G. S. RYDIN, Chicago.

To Army Medical School, Washington, D. C., for instruction in orthopedic surgery, Lieut. CARROLL L. STOREY, Oberlin.

To Boston, for duty, from Camp Grant, Major THOMAS A. WOODRUFF, Chicago.

To Camp Custer, Battle Creek, Mich., Eighty-Fifth Division, for duty from Fort Benjamin Harrison, Capt. WILLIAM J. UPPENDAHL, Peoria.

To Camp Doniphan, Fort Sill, Okla., for duty, from Fort Oglethorpe, Lieut. DAVID R. SCOTT, Macomb.

To Camp Hancock, Augusta, Ga., Twenty-Eighth Division, for duty, from Fort Benjamin Harrison, Lieut. ALEXANDER A. DRILL, Chicago.

To Camp Gordon, Atlanta, Ga., base hospital, from Fort Benjamin Harrison, Lieut. GILBERT M. LOEWE, Chicago; as member of board for examination of command for tuberculosis, from Camp Sheridan, Montgomery, Ala., Lieut. JAMES A. BRITTON, Chicago; from Fort Benjamin Harrison, Lieut. OTTO J. SCHOTT, Chicago.

To Camp Greene, Charlotte, N. C., Headquarters Military Police, from Camp Greene, Capt. GEORGE A. KELSO, Chicago.

To Camp Logan, Houston, Texas, base hospital, Lieut. OLIVER C. HARGREAVES, Chicago.

To Camp Pike, Little Rock, Ark., for duty, from Fort Oglethorpe, Lieut. HERSCHEL V. BRUNKER, Casey.

To Camp Shelby, Hattiesburg, Miss., for duty, from Fort Oglethorpe, Lieut. MAURICE WILLIAMSON, Alton.

To Camp Sherman, Chillicothe, Ohio, base hospital, from Fort Benjamin Harrison, Lieut. ADOLPH M. TEIXLER, Chicago.

To Camp Upton, L. I., N. Y., base hospital, from Post-Graduate Medical School, New York City, Lieut. GEORGE E. O'GRADY, Chicago.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Fort Benjamin Harrison, Capt. NATHAN S. DAVIS, Chicago.

To Camp Wheeler, Macon, Ga., base hospital, from Fort Benjamin Harrison, Lieuts. MAURICE W. BYRNE, Chicago; as member of tuberculosis examining board, from Fort Benjamin Harrison, Lieut. EDWARD BUCKMAN, Chicago; from Fort Sill, Lieut. EDWARD G. SEPPLE, Chicago.

To Fort Riley, Kan., for instruction, Lieuts. RAYMOND F. ELMER, Chicago; NORTON W. BOWMAN, Flora.

To Hoboken, N. J., for duty, from Fort Oglethorpe, Lieut. PETER T. SPURCK, Peoria.

To Montgomery, Ala., for duty, from Fort Benjamin Harrison, Capt. CHARLES DUDLEY, Chicago.

To Pittsburgh, for instruction in military roentgenology, from Fort Oglethorpe, Lieut. ELMER M. SMITH, Georgetown.

To Portland, Maine, for duty, from Camp Greenleaf, Lieut. JAMES A. VALENTINE, Newman.

To Kelly Field, San Antonio, Texas, for duty, from Fort Benjamin Harrison, Lieut. WILLIAM E. MERCER, Liberty.

Honorably discharged, Lieut. MERLE H. WHITLOCK, Canton.

To his home and the inactive list, from Camp Taylor, Major FREDERICK MENGE, Chicago.

To his home and the inactive list, on account of being physically disqualified for active service, Lieut. AUSTIN I. BROWN, Murphysboro.

Indiana

To Anniston, Ala., base hospital, from Fort Benjamin Harrison, Lieut. JESSE L. STOWERS, Indianapolis.

To Camp Devens, Ayer, Mass., base hospital, from Fort Benjamin Harrison, Lieut. ROBERT C. COCHRANE, Indianapolis.

To Camp Meade, Annapolis Junction, Md., base hospital, from Orthopedic Hospital, New York City, Lieut. LOUIS A. BOLLING, Attica.

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieut. BROSE S. HORNE, Gas City.

To Camp Wheeler, Macon, Ga., base hospital, from Fort Benjamin Harrison, Capt. JAMES W. DUCKWORTH, Indianapolis; Lieut. JOHN W. PAHMEIER, Indian Springs.

To Oklahoma City, Okla., for instruction in orthopedic surgery, from Camp Cody, Lieut. REAVILL M. WALDEN, Evansville.

To Pittsburgh, for instruction in military roentgenology, from Allentown, Pa., Lieut. HARRY O. JONES, Berne.

To his home and honorably discharged, from Camp Grant, Capt. DANIEL A. CAMPBELL, Boonville.

To his home and honorably discharged, on account of being physically disqualified for active service, from Camp Grant, Lieut. GEORGE C. CARPENTER, Terre Haute.

Honorably discharged, from Camp MacArthur, Lieut. SIDNEY G. CORTNER, Olisco.

Iowa

To Camp Beauregard, Alexandria, La., base hospital, from Fort Riley, Lieut. ARLO R. ZUERCHER, Cedar Rapids.

To Camp Dodge, Des Moines, Iowa, base hospital, Lieut. EDWARD T. EDGERLY, Ottumwa.

To Fort Ontario, N. Y., for duty in his specialty, from St. Elizabeth's Hospital, Washington, D. C., Capt. RICHARD G. EATON, Cherokee.

To Hoboken, N. J., for duty, from Fort Oglethorpe, Lieut. HOWARD M. WILLIAMSON, Olin.

To Montgomery, Ala., Aviation Mobilization Camp, for duty, from Fort Riley, Lieut. ROSCOE D. TAYLOR, Spencer.

To Pittsburgh, Pa., for instruction, and on completion *to Fort McHenry, Md.,* for duty with United States Army General Hospital No. 2, Capt. JOHN R. WALKER, Fort Madison.

To Portland, Ore., for assignment to duty with aero squadrons, from Fort Riley, Lieuts. JOHN E. STANSBURY, Cedar Rapids; JAMES H. O'DONOGHUE, Storm Lake.

To San Antonio, Texas, Kelly Field, for duty, from Fort Benjamin Harrison, Lieut. DONALD McELDERRY, Ottumwa.

Kansas

To Fort Riley, Kan., for duty, from Fort Riley, Lieuts. ANDREW ENGBERG, McPherson; THOMAS M. GREENWOOD, Circleville; CLYDE L. MORRIS, Kansas City.

To Kenosha, Wis., The Nash Motors Co., for duty, from Fort Riley, Lieut. CHARLES V. HAGGMAN, Scandia.

To Montgomery, Ala., Aviation Mobilization Camp, for duty, from Fort Riley, Lieut. THOMAS S. VENARD, Ness City.

To Oklahoma City, Okla., for instruction in orthopedic work, from Douglas, Ariz., Lieut. MARION TRUEHART, Sterling.

To Portland, Ore., for assignment to duty with aero squadrons, from Fort Riley, Lieuts. EMANUEL H. CLAYTON, Arkansas City; WILLIAM A. McCULLOUGH, Delevan.

To the inactive list, on account of being physically disqualified for active service, Lieut. ROBERT E. EGGAN, Springhill.

Kentucky

To Camp Cody, Deming, N. M., base hospital, *from* Fort Benjamin Harrison, Lieut. GEORGE A. CRAFTON, Fulton.

To Camp Lewis, American Lake, Wash., for duty, from Fort Oglethorpe, Lieut. TIMOTHY T. GIBSON, Middlesboro.

To Camp MacArthur, Waco, Texas, *from* Fort Benjamin Harrison, Lieut. LEONARD CHAMPION, Cadiz.

To Camp McClellan, Anniston, Ala., for duty with Headquarters Military Police, from Camp Greenleaf, Lieut. LOGAN FELTS, Lewisburg.

To Camp Taylor, Louisville, Ky., base hospital, from University of Pennsylvania, Major WALLER C. BULLOCK, Lexington; Capt. JOHN J. MOREN, Louisville.

To Fort Riley, Kan., for duty, Capt. JOHN L. FARMER, Allensville.

To Hoboken, N. J., for duty, from Fort Oglethorpe, Lieut. WILLIAM H. NASH, Finchville.

To Montgomery, Ala., Aviation Mobilization Camp, for duty, from Fort Oglethorpe, Lieuts. HIRAM S. EGGERS, Louisville; ROBERT A. IRVIN, Clay City.

To Philadelphia, Pa., Evans Dental Institute, for instruction, Lieut. WILLIAM G. ECKMAN, Covington.

To Portland, Ore., for assignment to duty with aero squadrons, from Fort Riley, Lieuts. PAUL D. MOORE, Calliown; WALTER COX, Lexington.

Louisiana

To Camp Beauregard, Alexandria, La., as member of board for examination of command for tuberculosis, Lieut. HENRY C. LOCHTE, New Orleans.

To Philadelphia, Pa., Evans Dental Institute, for instruction, from Fort Oglethorpe, Capt. JOHN SMYTH, New Orleans.

To Salt Lake City, Utah, to establish a Physical Examining Unit at that place, from Aviation Section Signal Corps, Seattle, Wash., Lieut. LOUIS LEVY, New Orleans.

Maine

To Camp Joseph E. Johnston, Jacksonville, Fla., base hospital, from Camp Gordon, Capt. BERTRAND D. RIDLON, Portland.

To Pittsburgh, Pa., for instruction, and on completion *to Fort Riley*, base hospital, from Fort Riley, Lieut. FRANK W. MERRITT, Jay.

Maryland

To Camp Gordon, Atlanta, Ga., as member *of* board for *examination* of command for tuberculosis, from Camp Sheridan, Lieut. ALGERNON D. ATKINSON, Baltimore.

To Camp Logan, Houston, Texas, as assistant to division surgeon, from Camp Greenleaf, Capt. THOMAS R. CHAMBER, Baltimore.

To Camp Meade, Annapolis Junction, base hospital, Lieut. FRANK C. MARINO, Baltimore.

To Fort Myer, Va., for duty, from Washington Barracks, Capt. MAYNARD J. SIMMONS, Indian Head.

To Memphis, Tenn., Aviation School, Park Field, for duty, from Fort Benjamin Harrison, Capt. COMPTON WILSON, Friendship.

To Montgomery, Ala., Aviation Mobilization Camp, for duty, from Fort Oglethorpe, Lieut. ALEXANDER B. KALBAUGH, Western Port.

To Philadelphia, Pa., Evans Dental Institute, base hospital, Capt. HUGH W. BRENT, Baltimore.

Honorably discharged, on account of being physically disqualified for active service, Lieut. JAMES ETHERIDGE, Baltimore.

Massachusetts

To Army Medical School, Washington, D. C., for instruction in orthopedic surgery, from Camp Devens, Lieut. RICHARD A. CUNNINGHAM, Boston.

To Boston, Mass., Aviation Section, Signal Corps, as member of examining board No. 2, Capt. ROBERT F. SOUTHER, Boston; as member of examining board No. 1, Lieut. WILLIAM J. HARKINS, Boston.

To Camp Devens, Ayer, Mass., base hospital, from University of Pennsylvania, Major WILLIAM F. WESSELHOEFT, Boston; Lieuts. WILLIAM F. WOOD, Boston; from Fort Benjamin Harrison, SOMERS FRASER and RICHARD J. R. CAINES, Boston.

To Camp Sevier, Greenville, S. C., base hospital, from Fort Benjamin Harrison, Lieut. JOHN W. TRASK, Lynn.

To Camp Sheridan, Montgomery, Ala., base hospital, from Fort Benjamin Harrison, Lieut. WYATT S. ROBERTS, Boston.

To Camp Wheeler, Macon, Ga., base hospital, from Fort Benjamin Harrison, Lieut. EDMUND A. ROGERS, Boston.

To Fort Adams, Miss., for duty, from Camp Devens, Lieut. VICTOR S. MERRITT, Springfield, Mass.

To Fort Oglethorpe, Ga., for instruction, from Boston Psychopathic Hospital, Lieut. WILLIAM T. RUMAGE, Arlington.

To Fort Riley, Kan., base hospital, from Fort Riley, Lieut. LEON NEWMAN, Boston.

To Fort Terry, N. Y., for duty, from Camp Devens, Capt. ARTHUR P. PERRY, Boston.

To New York City, Neurological Institute, for instruction in his specialty, from Camp Greene, Lieut. ALFRED P. CHRONQUEST, Hathorne.

To Rockefeller Institute, for instruction, and on completion to his home and the inactive list, Major THOMAS E. CHANDLER, Boston; Lieut. MILE C. GREEN, Boston.

Michigan

To Camp Greene, Charlotte, N. C., Third Division, for duty as division sanitary inspector, from Camp Greenleaf, *Major* SAMUEL C. GURNEY, Detroit.

To Fort Riley, Kan., for instruction, Lieut. NATHAN J. JESSUP, Detroit.

To Montgomery, Ala., Aviation Mobilization Camp, for duty, from Fort Benjamin Harrison, Capt. CHARLES E. LONG, Grand Haven; *from* Fort Riley, Lieut. WILLIAM H. MEDDAUGH, Sand Creek.

To Peoria, Ill., The Holt Tractor Co., for duty, from Fort Riley, Lieut. EDWARD P. WAID, Salem.

To Pittsburgh, Pa., for *instruction* in military roentgenology, from Fort Oglethorpe, Lieut. JESSE O. PARKER, Owasso.

To Portland, Ore., *for* assignment to duty with areo squadrons, from Fort Riley, Lieut. HARVEY B. McCRORY, Birch Run.

To San Antonio, Kelly Field, *for* duty, from Fort Benjamin Harrison, Capt. HENRY S. BARTHOLOMEW, Lansing.

To Walter Reed General Hospital, Takoma Park, D. C., for duty, from orthopedic hospital, New York City, Lieut. HAROLD A. BECK, Detroit.

To his home and honorably discharged, on account of being physically disqualified for active service, from Fort Benjamin Harrison, Capt. EDWARD C. RUMER, Flint.

Minnesota

To Camp Custer, Battle Creek, Mich., base hospital, from Allentown, Pa., Lieut. HERBERT H. THOMPSON, St. Paul.

To Camp Pike, Little Rock, Ark., base hospital, from Fort Benjamin Harrison, Lieut. PAUL R. HANKEE, Camion Falls.

To Camp Shelby, Hattiesburg, Miss., base hospital, from Fort Riley, Lieut. LLOYD T. DAVIS, Minneapolis.

To Fort Riley, Kan., base hospital from Fort Riley, Lieut. WILLIAM J. EGAN, Rochester.

To Minneapolis, Aviation Section, Signal Corps, *for* duty, Capt. ALOYSIUS S. FLEMING, Minneapolis.

To Montgomery, Ala., Aviation Mobilization Camp, *for* duty, *from* Fort Riley, Lieut. BENJAMIN W. KELLY, Aitken.

To Portland, Ore., for assignment to duty with aero squadrons, from Fort Riley, Lieuts. THORFINN THARALDSON, Cottonwood; NELS P. ANDERSON, Dunnell.

Mississippi

To Camp Greene, Charlotte, N. C., Third Division, *for* duty as assistant to division surgeon, *from* Camp Greenleaf.

To Camp Lee, Petersburg, Va., for duty, Lieut. GEORGE BASKERVILLE, Winona.

To Fort Riley, Kan., for instruction, Lieut. CLEVELAND DAVIS, Morgan City.

To his home and the inactive list, on account of being physically disqualified for active service, from Camp Meade and Walter Reed General Hospital, Lieut. CANNING *T. BELL, De Kalb.*

Missouri

To Camp Beauregard, Alexandria, La., base hospital, from Fort Riley, Lieut. RALPH L. COOK, St. Louis.

To Camp Funston, Fort Riley, Kan., for duty as division sanitary inspector, Capt. FRANK L. MORSE, St. Louis.

To Camp Pike, Little Rock, Ark., for duty, from Fort Riley, Lieut. PAUL B. CLAYTON, Odessa.

To Camp Taylor, Louisville, Ky., as member of board for examination of command for tuberculosis, Lieut. ROY W. *JOHNSON, St.* Louis.

To Camp Wheeler, Macon, Ga., base hospital, from Camp Greenleaf, Lieut. LLOYD L. TATE, St. Louis.

To Fort Ontario, N. Y., for duty, from Fort Riley, Lieut. WILLIAM L. KENNEY, St. Joseph.

To Fort Riley, Kan., for duty, from Fort Riley, Lieut. EVERETT L. MORGAN, Graham; for instruction, Lieut. GEORGE O. WILHITE, St. Louis.

To Montgomery, Ala., Aviation Mobilization Camp, for duty, from Fort Riley, Lieuts. JOHN H. TIMBERMAN, Marston; EDWARD C. WITTWER, Mountain Grove; FRANK HEDGES, Pattonsburg; St. Joseph.

Montana

To Clintonville, Wis., The Four Wheel Drive Co., for duty, from Fort Riley, Lieut. EDWARD A. SWEET, Helena.

To Fort Riley, Kan., base hospital, from Fort Riley, Lieut. EDWARD D. O'NEILL, Kalispell.

Nebraska

To Camp Greenleaf, Fort Oglethorpe, Ga., base hospital, from Camp Greenleaf, Capt. EGERTON T. WILSON, O'Neill.

To Montgomery, Ala., Aviation Mobilization Camp, for duty, from Fort Riley, Lieut. IRVIN C. MUNGER, Lincoln.

To Portland, Ore., for assignment to duty with aero squadrons, from Fort Riley, Lieut. WILLIAM E. DOANE, North Bend.

To Presidio, San Francisco, Calif., for duty as acting quartermaster, from Fort Riley, Lieut. HENRY A. JOHNSON, Tekamah.

Nevada

To Montgomery, Ala., Aviation Mobilization Camp, for duty, from Fort Riley, Lieut. WILLIAM L. HOWELL, Gardnerville.

New Hampshire

To Camp Custer, Battle Creek, Mich., for duty, from *Fort Benjamin* Harrison, Capt. CHARLES A. STURTEVANT, Manchester.

To Camp McClellan, Anniston, Ala., for duty as division sanitary inspector, from Fort McKinney, Me., Major HERBERT I. HARRIS, Fort Constitution.

To Camp Wheeler, Macon, Ga., base hospital from Fort *Oglethorpe*, Capt. HENRY L. STICKNEY, Manchester.

New Jersey

To Camp Dix, Wrightstown, N. J., base hospital, Lieuts. JAMES S. GREEN, Elizabeth; from Camp Sevier, JAMES F. WALLIS, Pleasantville.

To Camp Joseph E. Johnston, Jacksonville, Fla., base hospital, from Camp Sevier, Lieut. WALTER F. KEATING, Ridgewood.

To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe, Lieut. FRANK L. FIELD, Far Hills.

To Camp Upton, L. I., N. Y., base hospital, from Post Graduate Medical School, New York City, Lieut. ROCCO M. NITTOLI, Newark.

To Fort Riley, Kan., for instruction, Lieuts. LeROY L. COLSH, Maplewood; NEIL C. STEVENS, Morristown.

To Governors Island, N. Y., for duty with the 413th Telegraph Battalion, Lieut. ABSALOM A. LAWTON, Somerville.

To Newport News, Va., for duty, from Walter Reed General Hospital, Takoma Park, D. C., Capt. MAURICE ASHER, Newark.

To Philadelphia, Pa., Evans Dental Institute, for instruction, from Camp Greenleaf, Lieut. THOMAS A. CLAY, Paterson.

To Philadelphia, Pa., University of Pennsylvania, for instruction, and on completion *to Camp Dix,* base hospital, Lieut. NELSON K. BENTON, Newark.

To Washington Barracks, Washington, D. C., for duty, from American University, Lieut. ANTHONY G. SACCO, West Hoboken.

New Mexico

To Camp Wheeler, Macon, Ga., Thirty-First Division, as member of board for examination of command for tuberculosis, from Camp Doniphan, Lieut. ORIN J. WHITCOMB, Raton.

To Fort Oglethorpe, Ga., for instruction, from Camp Cody, Capt. OLIVER H. HAYMAKER, Roswell.

New York

To Albany, N. Y., for duty with base hospital No. 33, from Fort Niagara, Lieut. FREDERICK W. McSORLEY, Salem.

To Ann Arbor, Mich., Psychopathic Hospital, for intensive training in his specialty, from Fort Benjamin Harrison, Capt. REEVE TURNER, New York City.

To Army Medical School, Washington, D. C., for instruction in orthopedic surgery, from Fort Niagara, Major FREDERICK N. C. JERAULD, Niagara Falls; Capt. SURSE J. TAYLOR, Albany, from Fort Ethan Allen, Lieut. GEORGE J. GANOW, Fort Dickinson; from Fort Benjamin Harrison, Lieut. MELVIN G. HERZFELD, New York City.

To Boston, Mass. for orthopedic instruction, from Fort Ethan Allen, Lieut. WALTER J. SMITH, Waterville.

To Camp Beauregard, Alexandria, La., base hospital, from Rockefeller Institute, Capt. MORRIS B. BEECROFT, Albany.

To Camp Cody, Deming, N. M., for duty, from Fort Benjamin Harrison, Lieuts. LEON H. PRIOR, Buffalo; SAMUEL ROTH, New York City.

To Camp Devens, Ayer, Mass., as member of board for examination of command for tuberculosis, Capt. BRUNO S. HOROWICZ, New York City; from Fort Benjamin Harrison, Lieut. ALBERT BOWEN, Rochester.

To Camp Dix, Wrightstown, N. J., base hospital, from Plattsburg Barracks, N. Y., Major MENUS S. GREGORY, New York City; from Fort Benjamin Harrison, Lieut. ELLSWORTH J. SMITH, Larchmont.

To Camp Greene, Charlotte, N. C., for duty as division sanitary inspector, from Fort Ethan Allen, Major ISAAC W. BREWER, Geneva.

To Camp Greenleaf, Fort Oglethorpe, for duty from Camp Greenleaf, Lieut. JOHN H. FLYNN, Brooklyn.

To Camp Hancock, Augusta, Ga., base hospital, from Augusta, Ga., Capt. SAMUEL M. STRONG, New York City; from Fort Benjamin Harrison, Lieut. VALENTINE V. BOURKE, Brooklyn.

To Camp Logan, Houston, Texas, for duty, from Fort Benjamin Harrison, Lieut. GEORGE W. BEEBE, St. Johnsville.

To Camp Meade, Annapolis Junction, Md., for duty, from Army Medical School, Lieut. SAUL L. MEYLACKSON, New York City; from Fort Oglethorpe, Lieuts. LEE A. HADLEY, Syracuse; WILLIAM BLANCARD, New York; from New York City, Lieuts. SAMUEL PARNASS, Brooklyn; WILLIAM G. PHILLIPS, Jr., Brooklyn.

To Camp Mills, Garden City, L. I., for duty, Capt. CONSTANTINE J. MacGUIRE, New York City.

To Camp Sevier, Greenville, S. C., base hospital, from Fort Benjamin Harrison, Lieut. LOUIS B. SACHS, New York.

To Camp Sheridan, Montgomery, Ala., for duty, from Fort Oglethorpe, Lieut. BRICKHOUSE WILSON, New York City.

To Camp Upton, L. I., N. Y., base hospital, from Fort Porter, Major HOWARD FOX, New York City; from Fort Benjamin Harrison, Lieut. ARBOR D. MUNGER, Brooklyn; from New York City, Lieut. MAURICE LENZ, New York; *from* University of Pennsylvania, Lieut. RICHARD F. SEIDENSTICKER, Brooklyn.

To Camp Wheeler, Macon, Ga., base hospital, and on completion to his proper station, Major HANS ZINSSER, New York City; as member of tuberculosis examining board, from Fort Benjamin Harrison, Lieut. MAXWELL K. WILLOUGHBY, Auburn; for duty, from Fort Terry, Lieut. GEORGE N. ACKER, Second, New York City; from Camp Greenleaf, Lieuts. HAROLD B. SCOVERN, New York City; BENJAMIN C. RUSSUM, Brooklyn; JAMES E. WEATHERFORD, Brooklyn; WARREN C. FARGO, New York City.

To Fort Benjamin Harrison, Ind., for duty from Fort Porter, Major JUNIOUS H. McHENRY, New York City.

To Fort Oglethorpe, Ga., for duty with Evacuation Hospital No. 6, from Fort Jay, N. Y., Lieut. ALBERT MARGULIES, Brooklyn.

To Fort Riley, Kan., for duty in his specialty, from Camp Wheeler, Capt. ROBERT KING, Buffalo; for *instruction* Capt. MARK H. WARD, Suffern; Lieuts. MATHER CLEVELAND, THEODORE B. REED, New York City; for duty, Lieut. EDWARD H. McCAFFREY, Brooklyn; for temporary duty *in the* base hospital, from Rockefeller Institute, Lieut. WALTER P. BLISS, New York City.

To Montgomery, Ala., for duty, from Fort Benjamin Harrison, Capts. EDGAR S. BULLIS, Glens Falls; GUSTAVUS C. DARLINGTON, New York City; from Fort Oglethorpe, Lieuts. MAX DOBRIN, PERRY L. HELMICK, New York City.

To Newport News, Va., for duty at Camp Stuart, from Camp Greenleaf, Lieut. HENRY S. BARTHOLOMEW, New York City.

To New York City, for duty with Base Hospital No. 3, from Rockefeller Institute, Major GEORGE BAEHR, New York City; *to Bellevue Hospital,* for instruction, and on completion *to U. S. Army General Hospital, No. 1,* Williams Bridge, New York, for duty, from Allentown, Pa., Lieut. THOMAS E. LAVELLE, New York City; for instruction in orthopedic surgery, from Camp Bartlett, Lieut. IRA W. LIVERMORE, Gowanda; for duty, from Aviation Section, Signal Corps, Lieut. FEDOR L. SENGER, Brooklyn; *to Vanderbilt Clinic,* Cornell Medical College, from School of Roentgenology, Lieut. HARRY R. FOERSTER, New York City.

To Pittsburgh, Pa., for instruction in military roentgenology, from Fort Oglethorpe, Lieut. WILLIA MENGEL, New York City.

To Philadelphia, Pa., Evans Dental Institute, for instruction, Capt. HARRY B. HUVER, Williamsville; on completion to his home and the inactive list, Lieut. ALEXANDER L. SMITH, Rochester.

To Plattsburg Barracks, New York, to reexamine certain candidates for commissions, and on completion of this duty to his proper station, Capt. SANGER BROWN, Second, White Plains.

To Rockefeller Institute, for instruction in laboratory work, Lieuts. HARRY PLOTZ, Brooklyn; from Army Medical School, JULIAN S. MEYER, New York; HARRY C. SCHMEISSER, New York City.

To Tenafly, N. J., for duty, from Army Medical School, Lieut. BRYON D. WHITE, Brooklyn.

To his home and the inactive list, Capt. JOSEPH McDONALD, New York.

To his home and the inactive list on account of being physically disqualified for active service, from Camp Wheeler, Lieut. HENRY S. FRUITNIGHT, New York City.

To his home, from Camp Gordon, Lieut. CARLTON A. LEE, Brooklyn.

Honorably discharged, Capt. LOUIS HAUSWIRTH, New York City; Lieut. ALFRED BRAUN, New York City.

North Carolina

To Neurological Institute, New York, for instruction, Capt. EDWIN B. FEREBEE, Raleigh.

To New York City, Bellevue Hospital, for instruction and on completion of this course *to Rockefeller Institute,* for further instruction and on completion *to Camp Sheridan,* base hospital, Capt. EVERETT A. LOCKETT, Winston-Salem.

To report by wire to the commanding general, Southeastern Dept., from Chickamauga Park, Lieuts. LOUIS H. WEBB, Chapel Hill; NEWTON G. WILSON, Summerfield.

North Dakota

To Camp Beauregard, Alexandria, La., base hospital, from Fort Riley, Lieut. GEORGE V. JAMIESON, Devils Lake.

To Camp Shelby, Hattiesburg, Miss., base hospital, from Fort Riley, Lieut. JOHNSTON C. JACKMAN, Minot.

To Fort Riley, Kan., base hospital, from Fort Riley, Lieut. ADOLPH G. MAERCKLEIN, Ellendale.

To Montgomery, Ala., Aviation Mobilization Camp, for duty, from Fort Riley, Lieut. HIRAM LaM. YOUTZ, Willow City.

To New York City, Neurological Institute, for intensive training in brain surgery, from Fort Benjamin Harrison, Capt. JAMES P. AYLEN, Fargo.

Ohio

To Camp Dix, Wrightstown, N. J., for duty, from Fort Benjamin Harrison, Lieut. SAMUEL J. ELLISON, West Union.

To Camp Dodge, Des Moines, Ia., base hospital, from Fort Oglethorpe, Lieut. ROBERT R. SATTLER, Cincinnati; *from* Fort Benjamin Harrison, Lieut. RALPH W. FAUS, Wellington.

To Camp Grant, Rockford, Ill., for duty, from Fort Benjamin Harrison, Lieut. EDWIN G. SCHWARZ, Cleveland.

To Camp Jackson, Columbia, S. C., for duty, from New York City, Lieut. GEORGE B. BOOTH, Toledo.

To Camp Sevier, Greenville, S. C., for duty, from Fort Benjamin Harrison, Lieut. ARTHUR W. CARLEY, Dayton.

To Fort Oglethorpe, Ga., for a course of instruction, from Camp Cody, Lieuts. FRANK E. SNIDER, Madisonville; from Post Graduate Hospital, New York City, BARNEY J. HEIN, Toledo.

To Fort Riley, Kan., for a course of instruction, Lieut. FRED L. ANDREWS, Cleveland.

To Oklahoma City, Okla., for a course *of instruction* in orthopedic surgery, Lieut. ZALMON O. SHERWOOD, Geneva.

To Philadelphia, Evans Dental Institute, for a course of instruction and upon completion of this course to return to his proper station, from Columbus Barracks, Capt. GEORGE C. SCHAEFFER, Columbus.

To Washington, D. C., for duty as pharmacologist at the American University, from Gas School, Fort Sill, Ark., Capt. JAMES D. PILCHER, Cleveland; to Government Hospital for Insane, for duty, from Army General Hospital, No. 1 Capt. WILLIAM A. SEARL, Cuyahoga Falls.

To his home and honorably discharged from the Medical Reserve Corps, on account of being physically disqualified for active service, from Camp Wadsworth, Lieut. CHARLES C. MANDEVILLE, Galion.

To his home and relieved from further active duty in the Medical Reserve Corps, from Fort Des Moines, Lieut. LOUIS A. CORNISH, Cincinnati.

Honorably discharged from the Medical Reserve Corps on account of being physically disqualified for active service, Lieut. JERRARD W. COOMBS, Camden.

Oklahoma

To Fort Riley, Kan., base hospital, from Fort Riley, Lieut. CHARLES C. GARDNER, Ashland.

To Hoboken, N. J., for duty, from Fort Oglethorpe, Lieut. THOMAS M. BOYD, Norman.

To Montgomery, Ala., Aviation Mobilization Camp, for duty, from Fort Oglethorpe, Lieut. JAMES R. BOST, Cashion.

To Portland, Oregon, for assignment to duty with aero squadrons, from Fort Riley, Lieuts. FRANK R. BUCHANAN, Canton; PENDELTON GARDNER, Haileyville.

To Camp Travis, Fort Sam Houston, Tex., base hospital, Lieut. ARTHUR T. BLACHLY, Portland.

To Hoboken, N. J., for duty, from Fort Oglethorpe, Lieut. LEONARD M. VINCENT, Crane.

Pennsylvania

To Army Medical School, Washington, D. C., bacteriologic laboratory, from Fort Benjamin Harrison, Lieut. SOLOMON F. HOGE, Philadelphia.

To Camp Custer, Battle Creek, Mich., for duty, from Fort Benjamin Harrison, Lieut. HENRY B. INGLE, Bedford Springs.

To Camp Greene, Charlotte, N. C., for duty with Headquarters Military Police, from Camp Greenleaf, Lieut. JOSEPH J. AUSTRA, Philadelphia.

To Camp Greenleaf, Fort Oglethorpe, for instruction, Lieut. JAMES C. McCONAUGHEY, Wayne.

To Camp Lee, Petersburg, Va., base hospital, from University of Pennsylvania, Lieut. FREDERICK J. GARLICK, Philadelphia.

To Camp Logan, Houston, Tex., base hospital, from Orthopedic Hospital, New York, Lieut. RALPH L. RUTLEDGE, McKeesport.

To Camp Meade, base hospital, Capt. EDWARD McI. HALEY, Blossburg.

To Camp Mills, Garden City, L. I., base hospital, from New York, Lieut. JOHN W. FREY, Ovalon.

To Camp Sherman, base hospital, Lieut. LAWRENCE H. FITZGERALD, Pittsburgh.

To Camp Taylor, Louisville, Ky., for duty, from Fort Oglethorpe, Lieut. CLARENCE H. KETTERER, Butler.

To Camp Travis, Fort Sam Houston, Tex., for duty, from Fort Oglethorpe, Lieut. DeWITT B. NETTLETON, Sewickley.

To Camp Wheeler, Macon, Ga., *base hospital*, Major *JOSEPH* SAILOR, Philadelphia; from Fort Benjamin Harrison, Lieuts. JAMES B. CARROLL, Dunbar; REEVES W. DeCROW, Collegeville; from Atlanta, Ga., Lieut. RUBEN A. E. PETERSON, Allentown; from Fort Oglethorpe, Lieuts. THOMAS W. DRUCE, Philadelphia; FRANCIS E. DONNELLY, Wilkes-Barre, from Camp Shelby, Hattiesburg, Miss.; Lieut. JOHN H. MUSSER, Jr., Philadelphia.

To El Paso, Tex., for duty, with Ambulance Co. No. 1, from Chickamauga Park, Ga., Lieut. HUGH M. SHANNON, Philadelphia.

To Fort Oglethorpe, for instruction, from Camp Meade, Lieut. JOHN W. MANN, Pittsburgh.

To Fort Riley, Kan., for instruction, Lieut. BENJAMIN ROBINSON, Philadelphia.

To Garden City, L. I., N. Y., for duty, Major WALTER S. CORNELL, Philadelphia.

To Montgomery, Ala., Aviation Mobilization Camp, for duty, from Fort Oglethorpe, Lieut. ALBON E. FICHTNER, Johnston.

To Hoboken, N. J., for duty, from Fort Oglethorpe, Lieut. HARRY M. READ, York.

To Newport News, Va., for duty at Camp Stuart, from Camp Greenleaf, Lieut. FRANK D. CAMPBELL, Slippery Rock.

To Philadelphia, Pa., for duty with base hospital No. 20, Major GEORGE M. PIERSOL, Philadelphia; *to Evans Dental Institute*, for instruction, and on completion *to Wrightstown, N. J.*, base hospital, Major GEORGE M. DORRANCE, Philadelphia; for duty, from Neurological School, University of Pennsylvania, Capt. JOHN LOWMAN, Johnstown; *to Evans Dental Institute*, for instruction, Lieuts. HARRY S. CARMANY, HAROLD A. FLETCHER, Philadelphia; *to Jefferson Hospital* for duty, from Neurological School, University of Pennsylvania, Lieut. GUY M. MUSSER, Punxsutawney.

To Walter Reed General Hospital, Takoma Park, D. C., for temporary duty, from Camp Meade, Lieut. JAMES H. BALDWIN, Philadelphia.

To Williams Bridge, N. Y., United States General Hospital, No. 1, for temporary duty, from New York Orthopedic Hospital, Lieut. JAMES L. GILMORE, Pittsburgh.

To Pittsburgh, Pa., for instruction in military roentgenology, from Fort Oglethorpe, Capt. JOHN J. McKENNA, Philadelphia; Lieut. PATRICK J. O'DEA, Scranton.

To Rockefeller Institute, for instruction in the therapy of pneumonia, Lieut. CLIFFORD C. HARTMAN, Pittsburgh; for instruction and on completion to his proper station, from Camp Hancock, Lieut. WILLIAM N. PARKINSON, Philadelphia.

To his home and honorably discharged on account of being physically disqualified for active service, from Newport News, Va., Lieut. FREDERICK W. KNIPPEL, Mercer.

South Carolina

To Camp Greene, Charlotte, N. C., for duty with the Headquarters Military Police, from Camp Greenleaf, Lieut. ISAAC H. GRIMBALL, Ridgeland.

To Camp Robinson, Sparta, Wis., for duty, from Fort Oglethorpe, Capt. THEODORE C. STONE, Aiken.

South Dakota

To Fort Sill, Okla., base hospital, from Camp Pike, Capt. THOMAS W. MOFFITT, Deadwood.

To Portland, Ore., for assignment to duty with aero squadrons, from Fort Riley, Lieut. FRANCIS T. READ, South Shore.

Tennessee

To Army Medical School, Washington, D. C., for instruction in orthopedic surgery, Capt. Alphonse *H.* Meyer, *Memphis*.

To Camp Gordon, Atlanta, Ga., as member of board for examination of command for tuberculosis, from Fort Oglethorpe, Lieut. ENOCH S. SEALE, Nashville.

To Camp Greene, Charlotte, N. C., for duty, from Fort Oglethorpe, Lieut. CURTIS R. SENTER, *Memphis*.

To Fort McPherson, Ga., base hospital, from Camp Greenleaf, Lieut. CHARLES D. BLASSINGAME, Memphis.

To Fort Myer, Va., from Camp Meade, Lieut. ALLEN L. LEAR, Sewanee.

To Fort Oglethorpe, Ga., for duty with Field Hospital No. 3, from Fort Oglethorpe, Lieut. LOUIS F. VERDEL, *Memphis*.

To Oklahoma City, Okla., for instruction in orthopedic surgery, from Fort Oglethorpe, Lieut. BENJAMIN L. SCHOOLFIELD, Memphis.

To Walter Reed General Hospital, Takoma Park, D. C., for duty in connection with the Mobile Operating Unit, from Army Medical School, Lieut. PAUL E. McNABB, Knoxville.

Texas

To Camp Logan, Houston, Tex., for duty with the Headquarters Military Police, from Camp Greenleaf, Lieut. PIERRE F. HIGGINS, Fort Worth.

To Camp Meade, Annapolis Junction, Md., for duty, from Fort *Oglethorpe*, Lieut. KARL CHAMBERS, Jasper.

To Fort Oglethorpe, Ga., for instruction, from Camp Cody, Lieuts. HENRY BRADBROOK, Cat Spring; ROBINSON H. SALMON, Maypearl.

To Oklahoma City, Okla., for instruction in orthopedic surgery, from Camp Fort Bliss, Lieut. FREDERICK E. HUDSON, Anson.

Virginia

To Camp Jackson, Columbia, S. C., for duty, from Fort Oglethorpe, Lieut. BERNARD BARROW, Barrows Store.

To Philadelphia, Pa., Evans Dental Institute, for instruction, Lieuts. LEWIS G. RICHARDS, *Roanoke*; from Fort Oglethorpe, JOHN B. HALLIGAN, Petersburg; for instruction and on completion *to his proper station*, from Fort Myer, Lieut. MINOR G. LILE, University.

To report by wire to the commanding general Southeastern Dept. from Chickamauga Park, Lieut. JAMES C. MOTLEY, Abingdon.

To his home and the inactive list on account of being physically disqualified for active service, Lieut. GRANVILLE EASTHAM, Rapidan.

Washington

To Camp Lewis, American Lake, Wash., base hospital, Lieuts. HIRAM S. ARGUS, EDWIN A. MONTAGUE, HARRY G. WILLARD, Tacoma.

To Camp Mills, Garden City, L. I., for duty, Lieut. IVAN J. D. SHULER, Seattle.

West Virginia

To Camp Cody, Deming, N. M., base hospital, from Camp Cody, Capt. LEWIS C. COVINGTON, Charleston.

To Camp Greene, Charlotte, N. C., for duty as assistant to the Division Surgeon, from Camp *Greenleaf*, Lieut. WILLIAM H. *McLAIN*, Wheeling.

To Camp McClellan, Anniston, Ala., for duty with Headquarters *Military Police, from Camp Greenleaf, Lieut.* WILLIAM NELSON, Hansford; from Fort Benjamin Harrison, Lieut. ADLAI E. CALLAHAN, Parkersburg.

Wisconsin

To Camp Beauregard, Alexandria, La., base hospital, from Fort Riley, Lieut. EMIL A. RUKA, Bascobel.

To Camp Grant, Rockford, Ill., base hospital, from Fort Benjamin Harrison, Lieut. ARTHUR C. DANA, Fond du Lac.

To Camp Jackson, Columbia, S. C., as member of board for examination of command for tuberculosis, from Camp Sheridan, Capt. MICHAEL R. WILKINSON, *Oconomowoc*; Lieut. HARRY C. MIX, *Green Bay*.

To Fort Riley, Kan., for duty, from Fort Riley, Lieut. GERHARD A. BADING, Milwaukee.

To Fort Sheridan, Ill., for duty, from Fort Benjamin Harrison, Major OTHO A. FIEDLER, Sheboygan.

To Montgomery, Ala., Aviation Mobilization Camp, for duty, from Fort Riley, Lieuts. RAYMOND A. HEBRON, Cataract; ALBERT H. KULIG, Dodge; CHARLES M. PEARSON, *Ogema*; EDWARD P. EVANS, S. Milwaukee; ATHOL H. WEDGE, Waupun.

To Newport News, Va., for duty at Camp Stuart, from Camp *Greenleaf*, Lieut. *GEORGE H.* SCHLENKER, Cazenovia.

To New York City, Neurological Institute, for intensive training from Psychopathic Hospital, Boston, Mass., Lieut. CHARLES *C.* ROWLEY, Winnebago.

To Portland, Ore., for assignment to duty with aero squadrons, from Fort Riley, Lieuts. DONALD G. HUGO, Chilton; HIRAM A. FULTON, Eau Claire; REUBEN J. ELLIOT, National Home; LESLIE A. VAN DER LINDE, Wautoma.

To his home and to report by wire to the Surgeon-General from Camp MacArthur, Lieut. *JAMES GURNEY* TAYLOR, *Milwaukee*.

To the inactive list, from University of Pennsylvania, Lieut. ORVILLE R. LILLIE, Milwaukee.

CORRECTIONS

Attention is called to the following corrections in previous lists of orders to medical officers:

In the issue of October 6: *To Fort Benjamin Harrison* for *instruction*, CHARLES A. ROBERTSON of Hopkinsville, Ky., instead of C. A. Robertson of Ridgetop, Tenn.

In the issue of November 24: *To Camp Cody*, base hospital, from Fort Benjamin Harrison, Lieut. ELMER E. JOHNSON, Philadelphia, instead of Elmer S. Johnson, Oregon, Wis.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

ILLINOIS

Pneumonia Quarantine Ordered.—The health commissioner of Chicago issued a notice, November 25, to the effect that "Pneumonia is a contagious disease and under city ordinances must be reported to the Department of Health. Beginning December 1, the Commissioner of Health will placard all reported cases of pneumonia."

Personal.—Col. William Stephenson, M. C., U. S. Army, department surgeon, Central Department, has been transferred to a similar position in the Eastern Department, with station at Governor's Island, N. Y.——Col. Henry I. Raymond, M. C., U. S. Army, Fort Mason, Calif., has succeeded Colonel Stephenson as department surgeon, Central Department.——Dean Arthur I. Kendall of Northwestern University Medical School, Chicago, delivered an address on "Recent Development in Intestinal Bacteriology," before the Philadelphia Pathological Society, November 2.

Clinical Conference on Tuberculosis.—The first clinical conference on the early diagnosis of tuberculosis under the auspices of the State Council of Defense, the State Department of Public Health and the Illinois Tuberculosis Association, constituting the Cooperating Committee on the Tuberculosis War Problem of Illinois, was held at Springfield, November 22-24. This conference was attended by thirty physicians, each delegated as county medical director on tuberculosis from his respective county. The clinical work was carried out in the dispensary of the Springfield Tuberculosis Association, the Springfield Open Air Colony, St. John's Hospital and the laboratory of the State Department of Public Health by Dr. Orville W. McMichael and Dr. Ethan Allen Gray, Chicago, Dr. James Pettit, Ottawa, and Dr. George Thomas Palmer, Springfield. This is the first of several conferences provided for in the Illinois tuberculosis war program, to provide one physician proficient in the diagnosis and treatment of tuberculosis in each county to meet the war time needs of the military and civil population.

INDIANA

New Hospital.—A contagious disease hospital is to be built as a separate unit of the Indianapolis City Hospital at a cost of $90,000. The plans call for the construction of a two-story brick and concrete building.

Smallpox Epidemic.—An epidemic of smallpox is reported to prevail in Fort Wayne, where there are now more than 200 cases. In addition there are forty-three cases in Grabill, New Haven, Huntertown, Allen and Aboite.

New Medical School.—The University of Notre Dame has established a medical department, which is offering the first two years of the medical course. Two years of college work are required for admission, constituting, with the two medical years, the first four years of the six-year combined course for the baccalaureate and M.D. degrees.

KENTUCKY

Hospital for Insane Burns.—The building for tuberculous patients at the State Hospital for the Insane, Lakeland, was destroyed by fire, November 26.

Personal.—Dr. Henry Enos Tuley, dean of the Medical Department of the University of Louisville, has accepted the appointment of superintendent of Louisville's new City Hospital from Mayor Smith.——Dr. A. E. Ferguson, Austin, has been appointed a member of the State Tuberculosis Board, succeeding Dr. Richard T. Yoe, Louisville, term expired.——Dr. W. Lucien Heizer, Bowling Green, secretary of the State Tuberculosis Commission, and formerly State Registrar of Vital Statistics, is ill with diphtheria at his home in Bowling Green.

MARYLAND

Personal.—Dr. Harry S. Jarrett, Towson, who has been under treatment at the Mercy Hospital, Baltimore, has returned home, and his condition is much improved.——Dr. Lewellys F. Barker of the Johns Hopkins Hospital delivered a lecture, illustrated by lantern slides, at the New York Academy of Medicine, December 7, on "The General Diagnostic Study by the Internist."

Dental and Medical Affiliation.—The first joint meeting of the Maryland State Dental Association and the Baltimore City Medical Society took place at Osler Hall, Baltimore, November 30. Dr. Weston A. Price, Cleveland, director of the National Institute of Dental Research, addressed the meeting on "Some Studies on the Relationship Between Oral Focal Infections and Localized and Systemic Diseases."——A recent affiliation has been effected between the Medical and Chirurgical Faculty of Maryland and the State Dental Association, whereby the dentists have become members of the faculty. A dental library is being collected.

MICHIGAN

New Hospital for Marquette.—A contagious disease hospital, to cost $10,000, will be erected by the St. Luke's Hospital Association in Marquette.

Tri-County Sanatorium Planned.—A meeting was held at Grand Haven, November 8, at which the question of erecting a tuberculosis sanatorium to be used jointly by Muskegon, Ottawa and Allegan counties was discussed. It is believed that a tri-county sanatorium can be much more economically administered than a separate institution for each county.

Personal.—Dr. Bartlett H. McMullen, mayor of Cadillac, underwent an operation recently in Rochester, Minn., for disease of the jaw, and is reported to be doing well.——Dr. James W. Inches, health officer of Detroit, who has been on duty in France, expects soon to return on leave.——Dr. George M. Belhumeur, Negaunee, has been appointed chief of the Kimbley Clark Company at Niagara, Wis.

MINNESOTA

Fellowships in University.—Fellowships in medicine, surgery, nervous and mental diseases, ophthalmology and otolaryngology are available at the University of Minnesota, under annual stipends in the three-year course, respectively, of $500, $750 and $1,000.

Society Organizes.—Thirteen members of the medical profession of Stillwater and Washington counties met at Stillwater, November 19, and reorganized the Washington County Medical Society, electing the following officers: president, Wade R. Humphrey; vice presidents, Drs. Gustavus A. Newman and Burton J. Merrill, and secretary-treasurer, Dr. Frank G. Landeen, all of Stillwater.

Personal.—Dr. Marion M. Hursh, Grand Rapids, is remodeling the parsonage of the Methodist Church, and will use it as an office and hospital.——Dr. Donald E. Baxter, Minneapolis, sailed for France, November 23, to take charge of the reconstruction of the Children's Hospital under the general war board.——Dr. Richard O. Beard of the College of Medicine of the University of Minnesota, Minneapolis, was the principal speaker at a mass meeting of citizens of Willmar and Kandiyohi counties to exploit the establishment of a general hospital.

Southern Minnesota Physicians Meet.—The annual meeting of the Southern Minnesota Medical Society was held in Mankato, November 26 and 27, under the presidency of Dr. Aaron F. Schmitt, Mankato. Addresses were delivered by Col. Henry S. Greenleaf, M. C., U. S. Army, Fort Snelling; Major William J. Mayo, Rochester; Lieut. Edward W. Ryerson, Chicago, and others. The following officers were elected: president, Dr. Melvin S. Henderson, Rochester; vice presidents, Drs. Alphonse E. J. Sohmer, Mankato, and Peter F. Holm, Wells, and secretary-treasurer, Dr. George F. Merritt, St. Peter.

Hospital News.—At a meeting of the Commercial Club, held in Rice Lake, November 14, resolutions were passed favoring the erection of a hospital to cost $9,500.——A thoroughly modern and well-equipped hospital building, with accommodation for twelve or fourteen patients, is to be erected in Appleton, in the spring. About $5,000 has already been subscribed for the enterprise.——The West Cottage at the Glen Lake Sanatorium was formally opened by the Hennepin County Sanatorium Commission, November 24. The opening of this cottage provides forty-four additional beds for the sanatorium, making a total of 104 beds.

MISSOURI

Personal.—Dr. Oscar J. Raeder, assistant superintendent of the City Sanitarium, St. Louis, has resigned his position to study neuropathology at the Boston Psychopathic Hospital;

under Elmer E. Southard.——Dr. John J. Evans, Manes, being compelled by a paralytic stroke to retire from practice, has been elected an honorary member of the Wright County Medical Society.

Hughes Brothers Convicted.—Drs. Ulysses S. G. Hughes and John H. Hughes, Kansas City, charged in the federal court with illegal drug selling, and convicted, are said to have been sentenced, November 19, to four years' imprisonment in the Federal Penitentiary, Leavenworth. One brother was convicted on eleven counts, and the other on nineteen, and both are said to have been previously convicted on the violation of the Harrison Narcotic Law, in the federal court in Kansas.

NEW YORK

State Troopers Aid in Maintaining Quarantine.—An outbreak of smallpox in the Cattaraugus Indian Reservation recently made it necessary to quarantine the entire reservation. Owing to the size of the reservation a detail of state troopers were despatched to the reservation on the request of the state health department. They effectively surrounded the reservation and maintained a satisfactory quarantine.

New York City

Harvey Society Lecture.—The fourth lecture of the Harvey Society series, delivered at the New York Academy of Medicine, December 8, was by Prof. Aldred S. Warthin, M.D., of the University of Michigan, Ann Arbor, on "The New Pathology of Syphilis."

New Section Hospital.—Dr. Henry Fairfield Osborn, president of the American Museum of Natural History, in cooperation with H. F. Beers, superintendent of construction of the museum, has designed a field hospital suitable for use in the army, and in Red Cross and general hospital work. The hospital is constructed in 5-foot units so that it can be taken apart and reconstructed by unskilled labor, and can be easily transported. The device can also be converted into a dwelling house. A large model is on exhibition at the American Museum of Natural History.

Personal.—Dr. James P. Warbasse, Brooklyn, has been elected president of a newly organized body known as the Consumers' Cooperative Society, the object of which is to arouse trades unions and consumers in general in a plan for the establishment of cooperative stores which will do away with the middleman's profit.——Dr. and Mrs. Simon Baruch celebrated their fiftieth wedding anniversary, November 27, by a reception at Sherry's, at which more than 1,000 guests were present.——Dr. William Seaman Bainbridge has had the degree of LL.D. conferred on him by the trustees of Lincoln Memorial University. Dr. Bainbridge is about to sail for foreign service.——Dr. Abraham Stone, Williamsburg, narrowly escaped death by gas asphyxiation in his home, November 20.

Annual Meeting of County Medical Society.—The one hundred and twelfth annual meeting of the Medical Society of the County of New York was held on the evening of November 25. Resolutions were passed for presentation to Congress aiming at the repeal of Section 209 of the excess profit tax, which imposes a tax of 8 per cent. on all incomes over $6,000 per annum derived from labor. It was pointed out that this law worked a great injustice to medical men in that they were not only taxed for working but any time they entered the service their income from the practice of medicine stopped altogether. The following officers were elected: president, Dr. Howard C. Taylor; vice presidents, Drs. Charles H. Peck and Samuel A. Brown; secretary, Dr. Daniel S. Dougherty; assistant secretary, Dr. J. Milton Mabbott, and treasurer, Dr. James Pedersen.

Two Committees Working for New Drug Laws.—November 28, two conferences were held in this city for the discussion of ways and means of controlling the traffic in habit-forming drugs. One of these committees was the Whitney Legislative Committee. This committee has decided to make a thorough investigation of the drug evil as it exists in this city at the present time. Beginning December 5, it will hold a series of hearings at which it will take testimony in regard to various phases of the drug traffic. What the committee desires to accomplish is to put the law in such shape as to prevent future addiction and to cure as many of the present addicts as possible. The other committee which met at the same time was the New York City Committee of Drug Evils. The members of this committee agreed that what was most needed was federal control of the traffic in narcotic drugs of a definite and comprehensive sort. The statement was made by Dr. Campbell, physician in charge of the Harlem Prison, that there were from 10,000 to 15,000 young men in New York City who were drug addicts and in need of some compulsory form of treatment. A bill was submitted for the consideration of this committee which provides that the government shall destrict the sale and manufacture of narcotic drugs through the imposition of a tax which would tend to make the distribution of drugs prohibitive for any but legitimate purposes.

PENNSYLVANIA

Personal.—Major John A. Hawkins, M. R. C., U. S. Army, Pittsburgh, who is now stationed at Allentown, was presented, November 22, with a fund of more than $4,500 for the equipment of the ambulance companies under his command.——Dr. John J. Coffman, Scotland, has resigned after eighteen years of service as secretary of the Franklin County Medical Society.——Dr. Samuel G. Dixon, state commissioner of health, who has been ill in the Pennsylvania State Hospital, Philadelphia, is reported to be convalescent.

Philadelphia

Baby Clinic Opened.—A baby clinic in charge of Dr. Lida Stewart-Cogill was opened yesterday at the Women's College Hospital. Instructions will be given to mothers daily.

Women Doctors Needed for Army.—According to Dr. Emily Dunning Barringer, New York, vice chairman of the Medical Women's National Association, who spoke at the meeting of the Women's Hospital Medical Society, in the Women's Medical College Hospital, November 21, twelve women physicians who are physically, morally and mentally fit are needed to serve with the American Army. The women who volunteer must be able to speak French.

Personal.—Dr. Edwin B. Cragin, professor of obstetrics and gynecology at Columbia University, New York, addressed the Obstetrical Society of Philadelphia at the College of Physicians, December 6, on "The Functions of a Woman's Hospital in a Large City," and was the guest of honor at a reception held at the Rittenhouse Hotel immediately following the meeting.——Dr. Charles S. Turnbull has been reappointed a member of the board of managers of the State Institution for Training of Deaf Children.——Dr. Robert C. Barrett has been elected acting roentgenologist to the Orthopedic Hospital during the absence of Dr. Ralph S. Bromer on military service.

RHODE ISLAND

Mass Meeting for Nurses.—November 11, a mass meeting was held in the Rhode Island State Medical Society Building, Providence, under the auspices of the Rhode Island Association of Graduate Nurses, to interest nurses in enrolling for home service in cantonment hospitals. Dr. G. Alder Blumer, Providence, presided.

Personal.—Dr. Frank A. Fearney, Narragansett Pier, has been appointed medical examiner (coroner) for the town of Narragansett, to succeed Lieut. Malford W. Thewlis, M. R. C., U. S. Army, resigned to enter military service.——Dr. Ransom H. Sartwell has been appointed resident physician to state penal institutions, with the exception of the almshouse, and the Exeter School for the Feebleminded.

WASHINGTON

Personal.—Dr. William F. West has been appointed a member of the board of health of Everett, succeeding Dr. John F. Beatty, resigned on appointment as health officer. ——Dr. Leon G. Woodford has resigned as city health officer of Everett to accept a position of superintendent and physician in charge of the Snohomish County Tuberculosis Sanatorium, Aldercrest.——Dr. Jarrett H. Farrell, Spokane, has been appointed bailiff in the court of Superior Judge Oswold.——Dr. Edward B. Nelson has been elected president, Dr. Foster M. Hoag, vice president, and Dr. I. Rebecca L. Muir, secretary-treasurer of the staff of the Deaconess Hospital, Spokane.

WISCONSIN

Campaign for Hospital.—The campaign to raise $500,000 for Columbia Hospital, Milwaukee, was opened, November 20, at a meeting and banquet held in the Hotel Pfister, and John G. Bowman was the chief speaker of the evening.

Personal.—Dr. Frederick M. Harris, formerly health officer of Fond du Lac and director of the state cooperative laboratory at St. Agnes Hospital, has resigned to enter private practice.——Dr. Frederick C. Christensen, Racine, underwent operation for appendicitis, November 17, and is reported to be doing well.——Dr. George N. Hidershide, Arcadia, is seriously ill with pneumonia.——Dr. Hugh P. Greeley, Waukesha, has gone to New York to take up special research work at the Rockefeller Institute.

Sanatorium Notes.—After listening to the plea of Dr. Fred T. Nye, Beloit, for the establishment of a sanatorium for Rock County, the county board, November 16, postponed action until the January meeting of the board.——The Ashland County Board, by unanimous vote, November 16, adopted the resolution favoring a tuberculosis sanatorium, and made an appropriation of $40,000 toward the erection of a building, with the provision that Bayfield and Iron counties aid in the project.——The board of supervisors of LaCrosse County, November 15, made an appropriation of $15,000 to complete the LaCrosse County Tuberculosis Sanatorium, which will be ready for occupancy in the spring.

CANADA

Hospital Burns.—The Hotel Dieu War Hospital at Ste. Hyacinthe, Que., was destroyed by fire, November 28. The patients, 1,000 in number, were removed in safety.

Diphtheria Death Rate Lowered.—During November the death rate from diphtheria has materially lessened in the province of Ontario. In fact, it dropped to the lowest figure in the history of the province. During the month in 1917 there were 432 cases reported, with sixteen deaths, as against 467 cases in the same month in 1916, with twenty-eight deaths. The health officials state that in the month free antitoxin was distributed at a cost of $3,907 which has no doubt brought about the low death rate from that disease. Infantile paralysis has almost disappeared from the province.

Personal.—Col. Harry M. Jacques, Toronto, medicals overseas, was invested with the Distinguished Service Order at Buckingham Palace, Nov. 29, 1917.——Lieut.-Col. Herbert S. Birkett, dean of the medical faculty of McGill University, Montreal, who has been overseas two years in command of McGill University Base Hospital, has resigned on account of continued illness. Lieut.-Col. John M. Elder, Montreal, has taken over the command.——Dr. Howard A. Kelly, Baltimore, visited Guelph, Ont., November 30. He was the guest of Dr. Alfred T. Hobbs of the Homewood Sanitarium. Dr. Kelly held a surgical clinic at the General Hospital, performed two or three operations, and gave an illustrated lecture on the use of radium in the treatment of disease. He was banqueted by the physicians of Guelph, and in the evening addressed the two Canadian clubs on "The Civic Duty of the Christian Citizen."

GENERAL

Roentgenologists to Meet.—The fourth annual midwinter meeting of roentgenologists will be held at the Hotel Traymore, Atlantic City, Friday evening and Saturday, Jan. 4 and 5, 1918, to which all physicians interested are invited.

Tri-State Physicians Meet.—The forty-fourth annual meeting of the Tri-State Medical Society of Indiana, Ohio and Michigan was held in LaPorte, Ind., November 21, under the presidency of Dr. Miles F. Porter, Fort Wayne, Ind. At the banquet in the evening, Dr. Frank R. Leeds, Michigan City, Ind., presided as toastmaster, and addresses were delivered by Rev. C. B. Moulinier, S. J., Regent of Marquette University, Milwaukee, Wis., on "Necessity of Standardizing Hospitals"; by Albert J. Ochsner, Chicago, on "After Treatment of a Surgical Case," and by Dr. Frank Billings, Chicago, on "Russia as Observed by the Red Cross Commission." The following officers were elected: president, Dr. Julius H. Jacobson, Toledo, Ohio; vice president, Dr. George V. Brown, Detroit; secretary, Dr. George W. Spohn, Elkhart, Ind. (reelected), and treasurer, Dr. Harry F. Mitchell, South Bend, Ind. (reelected). Detroit was selected as the place of meeting for 1918.

Bequests and Donations.—The following bequests and donations have recently been announced:

Hospital for Crippled and Deformed Children; Rosewood State Training School, Owings Mills, Md.; Presbyterian Eye, Ear and Throat Hospital; Provident Southern Hospital, and Maternité Hospital, Baltimore, each $2,000, by the will of Ferdinand Dietsch.

New York Post-Graduate Hospital, $1,000, the proceeds of a benefit, for the use of a babies' ward.

Adirondack Cottage Sanatorium, Saranac, N. Y., one-half the residuary estate of Robert W. Patterson, which is valued at about $1,000,000.

Lakeside Hospital, Cleveland, $1,000,000, and St. Vincent's Charity Hospital, Cleveland, $200,000, by the will of Oliver H. Payne, New York.

Alumni Association of the Jefferson Medical College, an ultimate bequest of $10,000, to become operative on the death of his widow, and to be known as a memorial to his widow and mother, by the will of Dr. Joseph M. Malatesta.

Lankenau Hospital, Philadelphia, a donation of a building fully equipped and valued at $60,000, by Charles A. Smith; cash contributions of $8,000, and a donation from the alumnae of the nurses' school of $5,000 for a free bed for nurses.

St. Agnes Hospital, Philadelphia, cash donations of $1,700 on donation day.

Trade Commission Acts on Salvarsan Patent.—The Federal Trade Commission has entered orders for licenses to three firms to manufacture and sell arsphenamine, the product heretofore known under the trade name of salvarsan, patent rights to which have been held by German subjects. The orders for licensees are subject to acceptance and agreement by the licenses to the stipulations made by the commission. On such acceptance and agreement, these licenses will be formally granted by Secretary L. L. Bracken, acting for the commission. The three firms licensed to manufacture and sell arsphenamine are Dermatological Research Laboratories of Philadelphia; Takamine Laboratory, Inc., of New York, and Herman A. Metz Laboratory of New York. While the price of the product is not at this time fixed by the commission, the right to fix prices is retained, and a price of $1 per dose to the Army and Navy, $1.25 per dose for hospitals, and $1.50 per dose for physicians, are the prices at which some, at least, of the licensees have stated that they intend to offer the licensed drug. The trade commission's action was taken under Section 10 of the Trading With the Enemy Act under direction of Commissioner Fort, on recommendation of C. H. McDonald, Edward S. Rogers and Francis Phelps, in charge of granting such licenses. The Public Health Service has prepared rules and standards for the manufacture and testing of arsphenamine, and will supervise its manufacture, authority having been conferred on the Public Health Service by the Secretary of the Treasury, and the observance of the rules and standards become a condition of the license.

FOREIGN

Sixty Years of Medical Practice.—The profession in Holland recently celebrated the sixtieth anniversary of the entrance into practice of one of their leading physicians, R. Krul of 's-Gravenhage. He has published a number of works on medical history and other subjects. His first work, in 1881, was on the evils of quackery.

Deaths in the Profession Abroad.—Rt. Hon. Sir **Leander Starr Jameson**, Bart., M.R.C.S. (Eng.); M.B., B.S. (Lond.), 1875; L.S.A. (Lond.), 1876; M.D., University of London, 1877; aged 64; formerly of Kimberly, South Africa; who as Dr. Jameson led the raid from Cape Colony into the Transvaal in 1895; died at his home in London, November 28. Dr. Jameson began his South African career as administrator of Rhodesia, British South Africa in 1891; four years later he led the raid into the Transvaal, took part in the battle of Kugersdorp, and surrendered to the Boers, the whole transaction occupying only four days. After his release he was indicted and tried in London, and sentenced to imprisonment for ten months, but was released after seven months on account of ill health. He returned to South Africa, and in 1900 was elected member of the Cape Legislative Assembly for Kimberly. In the same year he was appointed director of the DeBeers Consolidated Company, and two years later of the British South African Company. In 1904 he was made Premier of Cape Colony and served in this capacity until his retirement. Then he returned to London.——**A. Ballori**, a prominent alienist of Rome, aged 70, was recently killed by a homicidal paranoiac. He escaped a similar attack made by a patient, a few years ago, when one of the nurses sprang in front of the physician and received the fatal injury.——**J. Peyrot**, agrégé professor of surgery at the University of Paris and senator, aged 74.——**F. C. Barraza**, professor of organic chemistry at the University of Buenos Aires, and assistant professor of ophthalmology, aged about 55.

British Minister of Public Health.—Our London correspondent has from time to time referred to the proposition of creating a minister of public health, which means a position in the cabinet. According to an Associated Press dispatch for December 4, this has culminated in the appointment of Sir Christopher Addison, M. P., minister of reconstruction, to this position. According to the newspapers, he "hopes to carry a bill through parliament before Christmas forming a new ministry to operate a scheme of 'revolutionary character.'

This scheme is said to aim at the nationalization of the medical profession, involving free medical attendance for every one without charge. Premier Lloyd George, the *Express* adds, says the time is ripe for such a change." Sir Christopher Addison has been in the public eye for many years. He graduated from the University of London in 1893; he has been lecturer on anatomy at St. Bartholomew's Hospital; examiner of anatomy in the Universities of Cambridge and London; a member of the Faculty of Medicine, chairman of the Board of Intermediate Medical Study, and member of the Board of Human Anatomy and Morphology of the University of London; has served as secretary of the Anatomical Society of Great Britain and Ireland, as professor in anatomy in University College, Sheffield, and as editor of the *Quarterly Medical Journal.* He is the author of monographs on "The Pancreas and Adjoining Viscera," "Topographical Anatomy of the Abdominal Viscera and Especially the Gastro-Intestinal Canal in Man," and many other brochures on the subject of anatomy, and is joint author with Major Jennings of the book entitled, "With the Abyssinians in Somaliland," which appeared in 1905. Since 1910 Sir Christopher Addison has been a member of parliament from the Hoxton District of Shoreditch, and more recently parliamentary secretary of the board of education, and undersecretary of state, ministry of munitions.

PARIS LETTER

Paris, Nov. 8, 1917.

The War

COMPASS LOCALIZER FOR THE EXACT DETERMINATION OF THE DEPTH OF PROJECTILES

At a recent session of the Académie de médecine, M. Nemirovsky exhibited a new apparatus for localizing a projectile in a few minutes without making any measurements, calculations or diagrams, thus eliminating the most frequent sources of error. A rod index indicates the exact position of the projectile. The compass is used with the roentgen rays and, by means of an ingenious attachment, can be adapted to any screen. It is based on the method of the double image; the first is supplied by the standard ray, the second proceeding from the tube moved along a trifle. The localization can be made a few minutes before the operation because it is not necessary (as in the case of other compasses) to make the radioscopic test to disclose the approximate position of the projectile. It is easy and simple to adjust, and the results obtained are exact. During the operation, the compass guides the operator to the foreign body, no matter what route of approach is chosen. It permits, besides, the localization of many projectiles and their extraction with the same apparatus at the same time. The apparatus being firm and solid cannot get out of order, neither during the sterilization, nor during the operation, and the rods are interchangeable, numbered and graduated.

SURGICAL TREATMENT OF STUBBORN REFLEX CONTRACTURES OF THE EXTREMITIES

At one of the recent meetings of the Société de chirurgie de Paris, Dr. Le Fort of Lille read a paper on this subject which can be summarized as follows: Reflex contractures, in the great majority of cases, are amenable to medical treatment. They have a tendency to cure themselves, as a rule, and hysterical reflex contractures occur often. Psychotherapy, isolation and physiotherapy are the basis of all treatment. But certain severe and stubborn forms may lead to fibrous contractures and definite disability, and in these exceptional cases, surgery can and should intervene. Tenotomy is indicated, but it is often followed by a recurrence. In the intractable cases, arthrodesis can be done as a last resource. The peripheral sympathectomy of Leriche gives very good results when vasomotor disturbances predominate; it acts only indirectly on the muscular contractures. Excision of the cicatrix, the origin of the reflex trouble, can be attempted when the cicatrix is imperfect or painful and when complete excision is possible. Resection of the sensory nerve trunks is an excellent procedure, when anesthesia of these trunks by means of cocain relieves the contracture. When this is inapplicable, when all other methods have failed, when the condition is very grave and the patient accepts the risk of a serious operation, an experienced surgeon may, perhaps, in a few cases, and only when all these conditions are fulfilled, attempt the resection of one or two posterior roots, corresponding to the zone of the cicatrix, if such resection can, as for the lumbar and sacral nerves, be made outside of the investing dural sheath.

THE HEMATOLOGIC INDICATIONS FOR IMMEDIATE TRANSFUSION SOON AFTER A WAR WOUND

Drs. Depage and Govaerts (of the Belgian army), at one of the recent meetings of the Société de chirurgie de Paris, showed that one can make a diagnosis of a possibly fatal hemorrhage immediately after the patient has been wounded. Experience has shown that if the number of red blood cells in the venous blood is notably diminished, if less than 4,000,000 in the first six hours, the prognosis is nearly always fatal. In such cases, the injection of artificial serum is useless; consequently, blood transfusion is an absolute indication. These principles apply solely to cases of wounds of the extremities. With wounds of the viscera, the red cell count is influenced by many factors, and the interpretation of a blood analysis is always difficult. The above figures apply only to healthy adults, which soldiers usually are. Under these conditions, one can, by taking cognizance of the time elapsed since the occurrence of the injury, consider as evidence of an extremely grave hemorrhage, hence a positive indication for immediate transfusion, the following counts: Less than 4,500,000 in the first three hours, less than 4,000,000 in the first eight hours, and less than 3,500,000 in the first twelve hours. Depage and Govaerts have practiced systematic blood transfusion in cases of wounds of the extremities where blood examination, based on these principles, has demonstrated the existence of grave hemorrhage. Among fourteen patients, three died of a subacute infection (gas gangrene, *Bacillus perfringens* septicemia). It is evident, then, that when an infection is in the course of development during the first few hours after the wounding, transfusion is unable to save the life of the patient. Among the remaining eleven cases in which there was no subacute infection, eight were completely successful. Of the three failures, one was due to hemoglobinuria, and in the other two it can only be surmised that the transfusion of one-half liter of blood was insufficient. In certain cases, therefore, it will be necessary to inject, not one-half liter, but a whole liter of blood. For that purpose one may make use of two donors, having first made sure that their blood is not reciprocally agglutinable.

The immediate effect of the transfusion is most remarkable, very different from that which follows the injection of artificial serum. In some cases the result is truly astonishing. The patient, previously unconscious, seems to revive, the mucous membranes resume their color, and there is every evidence of a great change for the better in the condition of the patient. The blood pressure rises immediately, and this improvement is permanent. If the blood pressure drops within a few hours, it is a sign of a subacute infection for which, unfortunately, we have no remedy at the present time. A blood count made a few days later shows that the injected red blood corpuscles are not destroyed, that is, if one has taken precautions against agglutination. The anemia present is like that following moderate hemorrhage. The red blood cell count is never lower than 2,500,000. It seems, then, that great progress can be realized, thanks to this early detection of hemorrhages, sufficiently serious to menace life. If the blood count shows that the hemorrhage of itself will be fatal, then transfusion is an absolute indication. Transfusion can be done under the most simple technic without any danger to the donor, and proves a life-saving measure for patients irremediably doomed were it not for this heroic treatment.

Marriages

Lieut. Charles Gerald LaRocco, M. R. C., U. S. Army, Cleveland, to Miss Marie L. Kelley, both of Cleveland, in St. Louis, November 18.

Lieut. William Christian Jensen, M. R. C., U. S. Army, to Miss Myrtle R. Hatch, both of Worcester, Mass., at Oak Park, Ill., November 29.

Alfred James Leary, M.D., Newton, Mass., to Miss Helen M. Howard of Portsmouth, N. H., November 21.

Charles LeRoy Zimmerman, M.D., White Eagle, Okla., to Miss Edna Robbins of Oklahoma, recently.

Charles L. Seitz, M.D., Evansville, Ind., to Miss Arnia Lloyd of Shelbyville, Ind., November 19.

Francis Peter Boyd, M.D., to Miss Margaret H. Shea, both of Springfield, Mass., November 22.

Herbert Rogers Etheridge, M.D., to Miss Courtenay Arps, both of Norfolk, Va., November 21.

Deaths

Thomas Freeman Moses, M.D., Waltham, Mass.; Jefferson Medical College, 1861; aged 81; acting assistant surgeon, U. S. Army, during the Civil War; a Fellow of the American Academy of Medicine; from 1870 to 1894, a professor in the Urbana (Ohio) University, and for eighteen years president of the institution; died at his home, November 21.

Levi Pickett Esslinger, M.D., New Market, Ala.; University of Alabama, Mobile, 1903; aged 42; formerly a Fellow of the American Medical Association; a member of the Medical Association of the State of Alabama; a specialist on diseases of the eye, ear, nose and throat; died in a hospital in Nashville, Tenn., August 6, from gastric ulcer.

James William Koontz, M.D., Greenville, Ky.; Kentucky School of Medicine, Louisville, 1894; aged 47; formerly a Fellow of the American Medical Association; local surgeon for the Illinois Central System; a director of the Inter-Southern Life Insurance Company, Louisville; died in a hospital in Charleston, W. Va., November 20.

Asst. Surg. Dudley W. Queen, U. S. N. R., Temple, Texas; University of Louisville, Ky., 1912; aged 31; a member of the State Medical Association of Texas; for six months an officer of the Medical Reserve Corps of the Navy, and on duty on the U. S. Destroyer *Cassin,* which was torpedoed a few days ago; died in Ireland, November 20.

John R. Dink, M.D., Brandenburg, Ky.; Louisville (Ky.) Medical College, 1894; aged 49; a Fellow of the American Medical Association; for many years health officer of Neade County; selective draft examiner, for his district; died in St. Joseph's Infirmary, Louisville, November 17, two weeks after an operation for abscess of the brain.

Basil M. Woolley, M.D., Atlanta, Ga.; Atlanta (Ga.) Medical College, 1882; aged 82; a Confederate veteran; who was struck by an automobile, October 26; died from his injuries in the Davis-Fischer Sanitarium, Atlanta, October 28.

George William Fraker, M.D., Excelsior Springs, Mo.; University Medical College of Kansas City, 1891; Eclectic Medical University, Kansas City, 1906; aged 59; died in Wesley Hospital, Kansas City, Mo., November 8.

Died in the Service
MAJOR RICHARD WEIL, M. R. C., U. S. ARMY, 1876-1917
(*See The Journal, last week, p. 1899*)

Eugene B. Nash, M.D., Cortland, N. Y.; Homeopathic Hospital College, Cleveland, 1874; aged 79; formerly professor of materia medica in the New York Homeopathic Medical College; died at his home, about November 6.

Simeon Cole Bradley, M.D., Nyack, N. Y.; College of Physicians and Surgeons in the City of New York, 1880; aged 62; a retired practitioner; also a graduate in pharmacy; died at his home, November 13, from heart disease.

Daniel M. Bloom, M.D., New Waterford, Ohio; Eclectic Medical Institute, Cincinnati, 1875; aged 64; formerly a member of the Ohio State Medical Association; died in his office, October 26, from heart disease.

James Nelson Harris, M.D., Chicago; Indiana Medical College, Indianapolis, 1907; a Fellow of the American Medical Association; a colored practitioner; was shot and killed in his office by his fiancée, November 15.

Charles Watson Snyder, M.D., Clyde, Mich.; College of Physicians and Surgeons, Chicago, 1903; aged 37; a Fellow of the American Medical Association; died at his home, November 15, from nephritis.

William O. Benson, M.D., Milford, Ind.; Hering Medical College, Chicago, 1900; aged 48; formerly a member of the Indiana State Medical Association; died at his home, November 11, from pneumonia.

Abraham Philip Fetherolf, M.D., Allentown, Pa.; Bellevue Hospital Medical College, 1865; aged 74; surgeon to the Lehigh Hospital and Sanitarium, Allentown; died at his home, November 19.

D. Howard Johnston, M.D., Philadelphia; Hahnemann Medical College, Philadelphia, 1883; a member of the Medical Society of the State of Pennsylvania; died at his home, November 9.

John H. Sloan, M.D., Sante Fe, N. M.; Cincinnati College of Medicine and Surgery, 1881; aged 65; formerly a member of the New Mexico Medical Society; died at his home, November 15.

William S. Deutsch, M.D., St. Louis; Missouri Medical College, St. Louis, 1892; aged 46; a Fellow of the American Medical Association; died at his home, October 9, from diabetes.

George W. White, M.D., Canon City, Colo.; Medical College of Ohio, Cincinnati, 1868; aged 72; died at his ranch on Cottonwood Creek, about 30 miles from Canon City, November 10.

Honoré Joseph Coté, M.D., Boston; Tufts College Medical School, Boston, 1899; aged 56; a Fellow of the American Medical Association; died, November 7, from cerebral hemorrhage.

Hiram M. Tabor, M.D., Olive Hill, Ky.; Kentucky School of Medicine, Louisville, 1899; aged 50; formerly a Fellow of the American Medical Association; died at his home, November 8.

William Huber Hoffa, M.D., Benton, Pa.; Medico-Chirurgical College of Philadelphia, 1904; aged 36; coroner and sheriff of Columbia County; died at his home, November 11.

J. George Stuckey, M.D., New Philadelphia, Ohio; University of Wooster, Cleveland, 1889; aged 55; a member of the Ohio State Medical Association; died at his home, October 15.

George Lindenmeyr, M.D., New York City; College of Physicians and Surgeons in the City of New York, 1888; aged 51; died at his home, November 15, from heart disease.

M. L. Withers, M.D., Wallace, Va.; College of Physicians and Surgeons, Baltimore, 1878; aged 69; died in a hospital near Richmond, Va., November 10.

Edwin G. Rummel, M.D., Butler, Ohio; Western Reserve University, Cleveland, 1898; aged 45; died at his home, November 14, from pneumonia.

Albert Monroe Wortman, M.D., Baltimore; Washington University, St. Louis, 1873; aged 65; died at his home, November 12, from diabetes.

Leonidas B. Martin, M.D., Peoria, Ill.; Rush Medical College, 1868; aged 72; died at his home, November 2.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

NOSTRUMS IN RETROSPECT

A Review of Worthless or Unscientific Proprietary Mixtures Previously Criticized

[Foreword.—The article that follows is the second[1] of a series written primarily for the purpose of reviewing the findings of the Council on Pharmacy and Chemistry on certain unscientific or worthless proprietary mixtures. Although the preparations which will be taken up in this series have been extensively dealt with in previous reports, the fact that they are still widely advertised and sold indicates the need of further publicity. The series is written by a man who is thoroughly conversant with the work of the Council on Pharmacy and Chemistry and can speak authoritatively on questions dealing with the actions of drugs in the treatment of disease.]

[Article II]

ANASARCIN AND ANEDEMIN

By S. Q. Lapius, M.D.

"Anasarcin" and "Anedemin" are the twin nostrums of cardiac pseudotherapy. They are dubbed "twin nostrums" not so much because of any similarity in their formulas, that being a minor consideration in the average nostrum, but because of the close similarity in their methods of exploitation, the therapeutic claims made for them, and the time and place of their birth.

It may be remembered that they both claim Winchester, Tenn., as their birth-place, and they appeared on the market at about the same time; furthermore, a comparison of the claims formerly made for both of them indicated that one mind conceived the main idea that lies back of their exploitation. While Anasarcin is especially dealt with in this article, much of the discussion applies with equal force to Anedemin.

A LUSH FIELD FOR NOSTRUMS

Cardiac disease, with its resultant renal involvement, is frequently encountered; and running, as it does, a chronic course, it offers an almost ideal field of exploitation for the typical nostrum vendor. By a typical nostrum vendor we mean one whose knowledge of his product is far below that of his appreciation of a certain element of human character. On this element rests the whole secret of the nostrum vendor's success. It is variously termed credulity, gullibility and child-like simplicity, but it is that which often causes even the most conscientious clinician to turn aside from the use of the best known and most dependable drugs at his command, in the face of disappointment and failure, and employ some vaunted mixture which in his saner moments he scorns to use.

Anedemin is said to consist of a "Scientific Combination of three of the more recently investigated members of the Digitalis Series, with Sambucus." That is, of apocynum, strophanthus and squill with elder. It is difficult to know just what idea it is intended to convey by the statement that it is a "scientific combination" of these drugs, for it is unscientific to mix three drugs of this group for use in fixed proportion in a wide range of conditions, if indeed, there is ever any indication for their use.

The great disadvantages of strophanthus and apocynum pertain to the extreme uncertainty of their absorption from the gastro-intestinal tract. Strophanthus is occasionally absorbed promptly, sometimes so slowly that the therapeutic effects are not induced until an amount equal to several times that which would prove fatal if all of it were absorbed into the circulation has been administered, and unfortunately, one cannot control the absorption which may continue until a fatal effect is induced. This is true to an even greater degree of apocynum, and it was due to the recognition of this fact that apocynum was not admitted to the U. S. P. IX, the Committee on dosage having agreed that no safe and effective dose could be given.

THE COUNCIL'S PREVIOUS FINDINGS

In 1907 the Council on Pharmacy and Chemistry examined the literature used in the exploitation of Anasarcin and Anedemin and published its report. Anasarcin tablets, it was pointed out, were said to contain the active principles of *Oxydendron arboreum* (sour wood), *Sambucus canadensis* (elder) and *Urginea scilla* (squill), and the following claims were made for the nostrum:

> "Does what dropsy medicaments have hitherto failed to accomplish."
>
> "Superior to digitalis, strophanthus, scoparius, squills, acetate of potash and the hydragogue cathartics all put together."
>
> "The only known relief and permanent cure of dropsies."
>
> "Unrivaled heart tonic."
>
> "The most powerful agent known."
>
> "Safe in administration."
>
> "Non-toxic as ordinarily administered."
>
> "Will nauseate some persons," but "the reaction from the temporary depression is prompt."
>
> "In Bright's disease, both the interstitial and parenchymatous forms of nephritis, acute or chronic, no remedy . . . to equal it in efficacy."
>
> "Without increasing the debility of the patient or interfering with nutrition by producing loss of appetite . . ."
>
> "This treatment is to be continued without cessation until all symptoms of dropsy have disappeared."

A comparison of the earlier claims with those now being made (see advertisement reproduced from the *New York Medical Journal*) illustrates one of the results of the work of the Council. Today the nostrum exploiter avoids the cruder forms of obvious misstatement, but continues to make, by inference, claims that are equally misleading. It will be observed in this case that a more cautious pen worded the later advertisement, but there is still evident the intent to convince the reader that Anasarcin is superior to the official drugs in the treatment of cardiovascular diseases. The facts are that Anasarcin is at best a dangerous remedy in the hands of the average clinician in the treatment of such conditions, and its use is at all times to be condemned.

No competent investigator has ever investigated the pharmacology of sour wood (*Oxydendron arboreum*), and it appears to have no therapeutic value other than that due to a slight acidulousness. Elder (*Sambucus canadensis*) contains a trace of a volatile oil as its most important constituent, according to the British Pharmaceutical Codex of 1911 (p. 908), but it is difficult to explain why a trace of volatile oil should be considered important. Elder may be dismissed without further consideration in connection with Anasarcin tablets.

THE PHARMACOLOGY OF SQUILL

This leaves only squill among the constituents of Anasarcin for consideration. Sollmann (Manual of Pharmacology, 1917, p. 409) in discussing the advantages claimed for squill over other drugs of the digitalis group, says: "Dixon, 1906, points out that any superiority is outweighed by its disadvantages: uncertain absorption; strong gastro-intestinal irritation." Squill was formerly used as expectorant and diuretic, the activity having been attributed to two amorphous glucosids, scillipicrin and scillitoxin, but Ewins, 1911, found these to be impure mixtures. A later investigator claimed to have isolated two glucosidal agents from squill, but similar claims have often been made only to be disproved later, and we know of no confirmation of the claims regarding the isolation of any pure principles from squill having any true typical digitalis action.

The statement quoted from Sollmann is accepted by practically all pharmacologists, and we may say with certainty that squill is decidedly inferior to digitalis in the treatment of cardiovascular, and cardiorenal diseases, and certainly no active principles of squill were known to the scientific world at a time that the remarkable claims were first made for Anasarcin by an obscure pharmacist of Winchester, Tenn. Indeed, if Anasarcin were all that it was claimed to be, its discovery would have made Winchester as famous as a certain Wisconsin city was said to have been made by a popular beverage.

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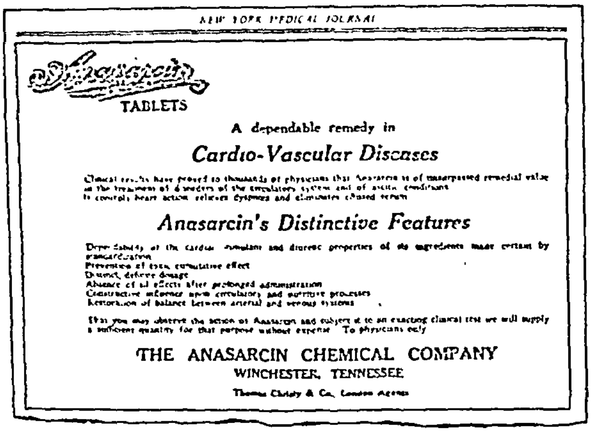
[1] The first article dealt with "Bell-Ans" ("Papayans-Bell") and appeared in The Journal, Nov. 24, 1917, p. 1815.

It has been abundantly demonstrated, and it is now almost universally accepted among well informed pharmacologists and clinicians, that all digitalis principles exert the same kind of action on the heart after they enter the circulation in effective doses, though they differ to an extraordinary degree in the intensity of their action and in their undesired side-actions such as nausea and vomiting. When the use of Anasarcin (squill) is followed by immediate improvement after digitalis has failed it merely shows that the dosage of digitalis was insufficient or that it was discontinued and the squill mixture was substituted before the full therapeutic effects of the digitalis developed.

WHEN THE DIGITALIS GROUP IS CONTRAINDICATED

If the administration of a sufficient dose of digitalis is not followed by improvement in the circulation it shows that the heart is incapable of responding to such treatment and the further use of any of the drugs of this group is distinctly contraindicated. This is confirmed by the experience of nearly every competent observer of digitalis therapy, and numerous fatalities have resulted from the failure to appreciate this fact and further administer some other member of the group, such as strophanthus or squill.

It is now well known that the cardiac effects of toxic doses of squill, and other members of the group, resemble closely those of cardiac disease, and it is often impossible to determine whether the behavior of the heart in a given case is attributable to insufficient dosage, to excessive dosage, or to the progress of the cardiac disease itself. If this occurs when one uses the best known members of the group it is certain that it occurs even more frequently when others that are less understood, are employed. In the light of this knowledge of the dangers attending the incautious use of any member of the digitalis group, and more especially the use of impure principles, such as are commonly obtained from squill, it is impossible to condemn sufficiently the recommendation that the use of Anasarcin should be continued without cessation until all symptoms of dropsy have disappeared.



NEW YORK MEDICAL JOURNAL

TABLETS

A dependable remedy in

Cardio-Vascular Diseases

Clinical results have proved to thousands of physicians that Anasarcin is of unsurpassed remedial value in the treatment of disorders of the circulatory system and of ascitic conditions
It controls heart action, relieves dyspnea and eliminates effused serum

Anasarcin's Distinctive Features

Dependability of the cardiac stimulant and diuretic properties of its ingredients made certain by [illegible]
Prevention of toxic cumulative effect
Distinct, definite dosage
Absence of ill effects after prolonged administration
Constructive influence upon circulatory and nutritive processes
Restoration of balance between arterial and venous systems

That you may observe the action of Anasarcin and subject it to an exacting clinical test we will supply a sufficient quantity for that purpose without expense. To physicians only

THE ANASARCIN CHEMICAL COMPANY
WINCHESTER, TENNESSEE
Thomas Christy & Co., London Agents

Digitalis bodies are not suited for the treatment of all cardiac disturbances, and it is, of course, self-evident that a time must come in the treatment of chronic cardiac disease when the heart is incapable of responding to any form of treatment with improvement. But, unfortunately, it never loses its response to toxic doses, and to push the administration of any drug or mixture containing any drug of the entire digitalis group—and especially those, like squill, in which the side actions are most prominent—beyond the point of tolerance is to court certain disaster.

THE TREATMENT OF CARDIAC DROPSY

While it is quite certain that many lives have been sacrificed to the failure to understand this phase of cardiac therapy, it is equally certain that many lives have been sacrificed because of insufficient dosage, and one can steer a safe course between these dangers only by using the best known preparation available, and in the present state of our knowledge it is indisputable that digitalis and the tincture of digitalis are best suited for the treatment of cardiac disease except in those few cases in which intramuscular or intravenous administration must be employed temporarily for immediate effect.

The secret of prescribing successfully for the relief of dropsy in cardiac disease consists in understanding the effects of digitalis on the heart, in administering it until these effects indicate that the desired object has been obtained, and stopping, or interrupting, the administration at that point until the effects begin to wear off. *Cumulation*, so called, is a positive advantage in such cases. It merely means that the desired therapeutic effects once induced persist for a time, and that further medication is unnecessary during such persistence of action. Eggleston has recently shown (*Arch. Int. Med.*, July, 1915, p. 1; abstr., The Journal, July 31, 1915, p. 459) that the full therapeutic effects of digitalis can be induced in suitable cases within a few hours even with oral administration.

We are not aware of a single publication in which a careful detailed clinical study of Anasarcin has been reported. The claims made for Anasarcin, past and present, indicate either a deliberate purpose to mislead or crass ignorance of the rudiments of pharmacology and therapeutics. The exploiters of the nostrum claim that thousands of physicians have found Anasarcin tablets of unsurpassed remedial value in the treatment of disorders of the circulatory system and of ascitic conditions.[2] It must be admitted that too many physicians have prescribed Anasarcin, otherwise the manufacturers would not have continued to spend thousands of dollars in advertising it in medical journals during a period of more than ten years.

Doctor, this article is meant to be a candid discussion with you, whether you use Anasarcin or not, because every clinician is vitally interested in the customs that obtain in the practice of medicine, and we wish to put a hypothetical question to you. Answer it, at least to yourself, in exactly the spirit in which it is put. Suppose that you prescribe Anasarcin for a patient who is critically ill with cardiac disease. He dies. Are you willing to tell the relatives frankly just what you used and the nature of the evidence on which you based your choice of this nostrum? Let the supposition be carried further and say that the case was hopeless, and agree that digitalis and all other drugs would have been equally ineffective. Granting all this, would your explanation satisfy? Would you in all candor dare to offer such an explanation? Try it as a hypothetical case before you are forced to apply it.

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[2] Former estimates of the number of physicians who prescribed Anasarcin appear to have been too high, possibly based on the ratio obtaining in Winchester, Tenn. Inquiry at five fairly busy drug stores in a large eastern city showed that in no instance was the pharmacist even acquainted with the name. One pretended to be, and manifested pity for the enquirer's ignorance in supposing that it could be imported during the war! He was obviously merely less honest than the others, who frankly admitted they had never heard of it.

Alternating Method of Exterminating Mosquitoes.—The two Sergents, who have contributed much to tropical medicine, recently presented to the Académie des Sciences at Paris a report on what they call the alternating breeding-place method. They state that as the larvae of mosquitoes require about three weeks in water before the larvae develop into perfect winged insects, by diverting the water away, leaving the area without standing water, the stranded larvae will die off. The larvae deposited in the diverted water can likewise be killed off by diverting the water back again into its primary place. By thus alternating, week by week, the breeding places, the mosquitoes get no chance to develop, while the expense of this alternate draining may be minimal in comparison with the expense of oiling large areas of water, etc.

Correspondence

THE CARREL-DAKIN TREATMENT

[Dr. Welch and Dr. Bevan request the publication of the following letter, which is a reply to the one appearing in The Journal, November 17, page 1727. A reply by Dr. A. T. McCormack is postponed till next week through lack of space.—Ed.]

Dear Bevan:—Thank you for your letter about the Carrel treatment of wounds, in which I am much interested.

I had the opportunity a year ago at Compiègne to observe the method and results of this treatment, and was most favorably impressed, as every one who has been there is. There can be no question that Carrel deserves the credit—and a very considerable credit this is—of recalling the attention of surgeons to the possibility of the sterilization of infected wounds by chemical means. The idea is, of course, not new, but is the original listerian one. That the Carrel-Dakin procedure actually accomplishes such sterilization sufficiently for surgical purposes is quite conclusively demonstrated, and whatever changes be made in his technic as the result of further experiences, he will deserve the credit of reapplying a great surgical principle of wound treatment, which had been practically abandoned, just as Lister will always have the credit of introducing the principles of antisepsis, though his technic be abandoned.

I was particularly interested when at Compiègne in following the Carrel method of bacteriologic control of the flora in the wound. I studied the smears made day by day from the wounds. These smears at first gave information concerning the numbers, and to a considerable extent also, the kinds of bacteria present. It was fascinating to watch the reduction, often astonishingly rapid, at other times slower, of these bacteria under the irrigation by the Dakin fluid. It was a quite novel thing to find the bacteriologist occupying this relation to the surgeon and telling him when the wound could be safely closed. The cicatrization after closure under this bacterial control was amazingly rapid.

The only other place where the Carrel treatment was consistently and correctly applied was by Depage at La Panne, which I did not visit, but I was told the results were admirable. Hutchinson returned from La Panne when I was in Paris, and was about to introduce the Carrel method at the American Ambulance at Neuilly.

Undoubtedly the technic of the Carrel treatment is elaborate and requires an intelligence and skill on the part of the surgeon which cannot be counted on for the average surgeon. The preparation of the Dakin solution also requires chemical skill. There are certainly difficulties in carrying out the Carrel treatment under the condition of actual warfare, and opinions may differ as to the extent of its applicability under these conditions; but this does not alter the fact that Carrel has made a very important contribution to the subject of wound treatment, and that surgeons should acquaint themselves with the principles and technic, and try to overcome the difficulties of applying the treatment as widely as possible.

I am not at all in sympathy with Sherman's efforts to have the treatment made obligatory or to have the Surgeon-General order this or any other method of treatment as the only correct procedure. There is not the slightest danger of any such thing happening. I am, of course, in sympathy with every effort looking to earlier treatment of wounds received at the front than was customary in the earlier stages of the war, and probably many wounds could be promptly closed which now are allowed to become badly infected, and thus the field for the Carrel treatment would be narrowed.

I see no conflict with the teachings of surgical pathology in Carrel's work. Of course, the cells and fluids must be relied on to take care of invading bacteria, and Almroth Wright felt, as you seem to feel, that what Carrel was aiming to do—destroy bacteria on the surface of wounds—was unimportant compared with reliance on the cellular defenses. Experience with the Carrel method, however, proves conclusively that the destruction of these surface bacteria without injury to the body tissues is of primary importance. So many who discuss this question seem to lose sight of the fact that a great principle is really involved, viz., that of the sterilization of wounds by chemical methods without damage to cells, and the influence of such sterilization on the repair of wounds. Carrel's work is fundamental on this point.

I understand that the Germans have taken over the Carrel method of wound treatment and are applying it most successfully. It would be melancholy to repeat the experience with Lister, who, discredited in his own country by all the surgeons, was taken up in Germany and his principles were there established so that his country had to accept him. I wish that you could have been at Compiègne and could have seen the actual results. These are quite unequaled, as Almroth Wright himself told me, and as so many have testified. We have enough in the way of control by other methods, I think, to justify this statement.

I visited Blake, whose great work is not in the line of wound treatment, but in the treatment of fractures. Halsted has been using the Carrel method in suitable cases for a long time, for over a year, and is most enthusiastic over it, but seems to feel that not many surgeons will master it.

Of course, much has appeared in the newspapers which is exaggerated and deplorable, and this is calculated to create a prejudice against Carrel; but I do not think that he is responsible for this.

William H. Welch, M.D., Baltimore.

"THE TREATMENT OF INFECTED WOUNDS"

To the Editor:—In The Journal, Nov. 10, 1917, p. 1645, appeared a review of the book by Carrel and Dehelly on "The Treatment of Infected Wounds." The larger part of the "review" is devoted to adverse criticism of statements ascribed to myself. While I am in no way responsible and had no previous knowledge of the matter in the book in question, the reviewer indulges in so many statements that are misleading or incorrect, that I deem it desirable to draw attention to the matter. In doing so, I wish to confine myself as far as possible to definite questions of fact, believing that the obvious animus of the reviewer will be adequately recognized by those who have interest in such matters.

The reviewer apparently regards it as fair play to record a list of antiseptics with which I have worked and to attach to them fantastic names which do not appear in the book nor have ever been employed by me, but which he apparently derives from advertising matter with which I have no connection in any way. He then proceeds to state, "Yet in all these 'discoveries' the potent agent has always been active chlorin (positively charged chlorin [Cl^+]), the same substance with which the medical profession has had well tried experience when employing calcium hypochlorite (bleaching powder) and the much abused solution of chlorinated soda (Labarraque's solution)." This statement is disingenuous and misleading. That "active chlorin" was contained in the substances is not surprising, since that was the object avowedly sought; but that positively charged chlorin ions, Cl^+, are the active agent in each case is a gratuitous assumption without a shred of evidence. As a matter of fact, hypochlorite solutions appear to ionize mainly to ClO^- ions. That the chloramins dissociate differently is evident from the fact that while the hypochlorites bleach indigo solutions, the former do not. Moreover, their reactions with many other substances, including proteins, are often quantitatively and qualitatively different. The suggestion that Cl^+ ions are the active agents in all the chlorin antiseptics is as without basis as the assumption of the equivalence of white arsenic and salvarsan. If any one imagines that the various chlorin antiseptics are chemically equivalent, he will be speedily disillusioned if he perform the simple experiment of putting pieces of any animal tissue in the solutions and observing the result.

The reviewer states that "the authors uphold Dakin's claim that this solution . . . is isotonic with the blood." As a matter of fact, I have never made such a claim, and have always known the solution to be hypertonic.

The reviewer states that "Dakin's solution is *not* neutral, but is alkaline, and should be alkaline when prepared in the manner described." My actual statement is as follows: "The solution is acid to phenolphthalein suspended in water, but *still alkaline to litmus.*"

Commenting on the use of phenolphthalein in aqueous suspension instead of in solution, the reviewer states, "It is, indeed, surprising that phenolphthalein should thus be used when every student in elementary analysis is taught that it is not reliable in such conditions." This statement is absolutely incorrect so far as the testing of hypochlorite solutions is concerned. Apparently the reviewer is unaware of the fact that hypochlorites react with the ordinary solutions of phenolphthalein to give chlorinated products and alkaline caustic soda, thus giving false indications of alkalinity. The use of phenolphthalein suspensions in water for testing the reaction of hypochlorite solutions has occasioned no difficulty in the hands of even inexperienced workers, and undoubtedly serves to avert the use of highly irritating solutions.

The reviewer, in contesting the approximate neutrality of the solutions, makes the following naive comment: "If to some of Dakin's solution alkali be added, and the solution then tested by phenolphthalein, it will still give the 'neutral' reaction." It has apparently escaped the notice of the reviewer that this condition was deliberately sought. The use of a balanced solution of hypochlorite containing "buffer salts" (bicarbonates or borates) was purposely chosen because such solutions "are able to retain their essential neutrality even after the addition of limited quantities of acid or alkali." It will, of course, be recalled that exact neutrality is an ideal and unobtainable condition, and that in everyday usage a solution is said to react acid, alkaline or neutral simply with regard to some arbitrarily chosen indicator.

Finally, may I add a word of personal explanation. No one deplores more than I do the ludicrous exaggerations of the daily press as to the utility of the solution which has become associated with my name. As a matter of fact, in none of my own writings in scientific journals have I coupled my own name with the solution, but have simply described the preparation as an approximately neutral sodium hypochlorite. In December, 1915, I wrote, "It would seem as if the time had come for a statement to the effect that what we have all been striving for is to find the best means of preparing, preserving and applying the powerful antiseptics, hypochlorites and hypochlorous acid, the main properties of which substances were discovered by distinguished French chemists many generations ago." So far as the hypochlorites are concerned, this is as true now as then.

H. D. Dakin, New York.

Comment of the Reviewer.—I regret that Dr. Dakin has made it necessary to deny any personal animus in my review of "The Treatment of Infected Wounds," by Carrel and Dehelly. What criticisms were made were made solely for scientific reasons.

Dr. Dakin places an unusual interpretation on my statement, "Yet in all these 'discoveries,' the potent agent has always been active chlorin (positively charged chlorin [Cl^+]). . . ." Contending that the statement is disingenuous and misleading, Dr. Dakin says: "That 'active chlorin' . . . was the object avowedly sought, but that positively charged chlorin ions, Cl^+, are the active agent in each case is a gratuitous assumption without a shred of evidence." In other words, Dr. Dakin differentiates between active chlorin and positively charged chlorin (*atoms, not ions.* The term *ion* was not used in the review). This is quite contrary to present day concepts. According to modern chemistry, oxidation may "be considered to involve ultimately the assumption of positive, or the loss of negative electrical charges by ions or atoms" and defined "as consisting fundamentally in the *loss of electrons by atoms or ions*" (Stieglitz: Qualitative Chemical Analysis, The Century Company, 1911, Part I, page 252). Thus hypochlorous acid [($Cl^+\overline{OH}$), which, besides ionizing into H^+ and $\overline{ClO}$ dissociates into Cl^+ and $\overline{OH}$], hypobromous acid (Br^+OH), hypoiodous acid (I^+OH) *and their derivatives* have as a common characteristic an atom with an unstable positive charge and a tendency to convert this atom into the common, stable, negative variety (Stieglitz and Senior, *Jour. Am. Chem. Soc.*, 1916, **38**, 2727), and therefore are *active* oxidizing agents. There is also convincing evidence to show that the chloramins (described by Dr. Dakin) contain positively charged chlorin as in the case of hypochlorite: (1) The formulas described by Dakin and methods of preparation (the replacing of a hydrogen atom of an amido group by chlorin) strongly suggest that the chlorin is positively charged. (2) On hydrolysis, they yield hypochlorous acid. (3) They are *active* oxidizing agents. I believe that if Dr. Dakin will consider these points, along with the classic researches of W. A. Noyes, Julius Stieglitz, Harry Shipley Fry, Lauder W. Jones and others, he will be convinced that I did not err.

In referring to the "isotonicity" of the Dakin-Daufresne solution ("Neutral" Solution of Chlorinated Soda, N. N. R.), I inadvertently had in mind an article by Daufresne, instead of Dakin. In this article (Daufresne, Maurice: L'hypochlorite de soude chirurgical. Différence entre la solution de Dakin et celle de Labarraque, *Presse méd.*, Oct. 23, 1916, p. 475), Daufresne states that "elle est sensiblement isotonique au sérum sanguin" ("it is perceptibly isotonic to blood serum"). I am sorry that this statement was attributed to Dr. Dakin; it happened, undoubtedly, because of the close association that has existed between the names of Daufresne and Dakin in their mutual work. However, so far as I am aware, this is the first time Dr. Dakin has publicly admitted the hypertonicity of the solution.

When I commented on the use of phenolphthalein, I did not have reference to its use as a solid instead of in solution. My contention was and is that phenolphthalein is "not reliable in such conditions," i. e., in the presence of *bicarbonates* and *hypochlorites.* The assertions in the review concerning the fallacy of the phenolphthalein indicator were made advisedly as a result of both theoretical considerations and a number of experiments. Dr. Dakin himself states that "hypochlorites react with ordinary solutions of phenolphthalein to give chlorinated products and alkaline caustic soda, thus giving false indications of alkalinity." This statement is in accord with my contentions, as, of course, phenolphthalein is only an indicator when in solution, whether it be added as such or "dusted" on as a powder. Furthermore, when we speak of neutrality, it should be understood that the neutrality is closely comparable to that of water. Dakin's solution does not have such neutrality, but is distinctly alkaline, part proof of which is the evidence offered by Dr. Dakin that it is *"alkaline to litmus."* Even under normal conditions, litmus is a more reliable indicator of alkalinity than phenolphthalein. Dr. Dakin's definition of neutrality would seem to be rather hazy, especially when, in the condition employed, the indicator is unreliable. The sooner writers will recognize that a solution is really neutral when the concentration of the H and OH ions is the same as exists in water, the sooner will there be less confusion in medical chemistry.

Dr. Dakin states that in none of his writings in scientific journals has he coupled his name with the solution. It might not be amiss to quote from page 23 of the recent "Handbook of Antiseptics" by Dakin and Dunham: "Neutral Sodium Hypochlorite Solution ('Dakin's Solution')."

The Reviewer.

"THE HANDICAP OF PROPRIETORSHIP IN MEDICINE"

To the Editor:—The article in The Journal, November 24, page 1818, with this title does us a gross injustice, and in reply thereto we beg leave to submit the following:

For reasons which every publisher (yourself included) understands, it is not practicable for us to reproduce in full, in the columns of *Therapeutic Notes,* all the clinical papers to which we wish to direct the attention of our readers. But that the article of Dr. Mundell was not garbled to make capital for Parke, Davis & Co. is quite apparent on comparison of the omitted portions with a previous paper by the same author reprinted in the January (1917) issue of the *Notes,* and herewith submitted together with clippings from other issues of the *Notes* which prove that we have not hesitated to present to our readers the dangers incidental to the misuse of Pituitrin as well as the advantages of its proper use.

Therapeutic Notes, in quoting other journals, puts into its readers' hands the means of investigating the fairness of its quotations. It is a house organ—true enough; but the organ of a house which has always appealed to the honor as well as to the progressiveness of the medical profession. Its publishers could not afford to resort to deception in advertising their products through this or any other medium.

The profession is indebted to Parke, Davis & Co. for Pituitrin (among other medicaments), and it is to the profession that the manufacturers look for the ultimate verdict. The contraindications are quite as important as the indications, and, as the excerpts submitted show, we have taken account of these, not only in forming our own estimate, but in presenting the evidence to the readers of *Therapeutic Notes.*

We cite these facts that you may give us a square deal in an early issue of The Journal if so disposed.

Parke, Davis & Co., Detroit.

[Comment.—The Journal has no desire to discuss Parke, Davis and Company's motives in omitting certain parts of Dr. Mundell's paper. What The Journal did was to publish those parts of Dr. Mundell's paper on the "Present Status of Pituitary Extract in Labor" that Parke, Davis and Company left out of their circular. That it is not practicable, as Parke, Davis and Company points out, for the manufacturers of proprietary products to reproduce in full all clinical papers dealing with such products is obvious. It is not so obvious why such concerns in abstracting or quoting papers of this kind should delete those parts that are unfavorable to the products dealt with rather than those that are favorable. Curiously, however, whenever an author is quoted only in part those parts are almost invariably those favorable to the product.—Ed.]

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

NO DRAFT OF MEN OVER 31 YEARS OF AGE

To the Editor:—1. I should like to know whether medical men (over the present draft age of 31 years) are to be drafted now or whether there is any possibility that this will be the case after the first of the year.

2. If the new draft age limit (from 18 to 45) is passed by Congress, will they take men from "country practices" where there is only one physician? My reason for wishing to know this is that if there is to be this necessity I should rather enlist than wait until the last and be drafted.

S. E. L.

Answer.—1. Under the present law, neither physicians nor other men over 31 years of age come within the selective service.

2. It is impossible to predict what may occur under new laws which may be passed until after these laws are passed. There is nothing in the present selective service law or in the regulations which would permit a special drafting of the medical profession.

TOEING IN

To the Editor:—What should I do, if anything, for a 2 year old child who "toes in" to an unpleasant extent when walking, although when standing he keeps the feet straight? The legs are well developed and are straight. He has had no illness except measles, and is in sturdy health. Is it worth while to apply braces, or will this fault correct itself in time?

W. J. W.

Answer.—A slight degree of toeing in is entirely natural, and indicates a strong foot. It is much to be preferred to a "toeing out" gait. Sometimes, however, it is present in an exaggerated degree; in such cases the trouble can be easily remedied by the use of a straight lasted shoe with a lift of one-fourth or three-eighths inch put under the outside of the sole. Great care must be taken that the shoes are sufficiently long. The empty space inside the shoe should extend at least one-fourth inch beyond the ends of the toes. It will be found that the heel will wear off unevenly on one side, and this should be kept squared up and not allowed to run over.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alabama: Montgomery, *Jan. 8. Chairman, Dr. S. W. Welch,* Montgomery.

Colorado: Denver, Jan. 8. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

Delaware: Wilmington, Dec. 11-13. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

District of Columbia: Washington, Jan. 8. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

Hawaii: Honolulu, Jan. 10-13. Sec., Dr. G. A. Batten, Box 375, Honolulu.

Indiana: Indianapolis, Jan. 8-10. Sec., Dr. Wm. T. Gott, 84 State House, Indianapolis.

Maryland: Baltimore, Dec. 11. Sec., Dr. J. McP. Scott, 137 W. Washington St., Hagerstown.

Minnesota: St. Paul, Jan. 2-4. Sec., Dr. Thomas McDavitt, 741 Lowry Bldg., St. Paul.

Missouri: St. Louis, Dec. 17-19. Sec., Dr. George H. Jones, 206 Washington St., Jefferson City.

National Board of Medical Examiners: New York City, Jan. 9-17. Sec., Dr. J. S. Rodman, 310 Real Estate Bldg., Broad and Chestnut Sts., Philadelphia.

New Hampshire: Concord, Dec. 10-12. Sec., Dr. W. T. Crosby, Beacon Bldg., Manchester.

New Mexico: Sante Fe, Jan. 14. Sec., Dr. R. K. McClanahan, East Las Vegas.

North Dakota: Grand Forks, Jan. 1. Sec., Dr. G. M. Williamson, Grand Forks.

Oklahoma: Oklahoma City, Jan. 8-9. Sec., Dr. J. J. Williams, Weatherford.

Oregon: Portland, Jan. 1. Sec., Dr. Herbert S. Nichols, Portland.

Pennsylvania: Philadelphia, Jan. 8-10. Sec., Nathan C. Schaeffer, [illegible]

[illegible], Jan. 3. Sec., Dr. B. U. Richards, State House, Providence.

South Dakota: Pierre, Jan. 8. Sec., Dr. P. B. Jenkins, Waubay.

Utah: Salt Lake City, Jan. 7-8. Cor. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

Virginia: Richmond, Dec. 11-14. Sec., Dr. J. W. Preston, McBain Bldg., Roanoke.

Washington: Spokane, Jan. 1. Sec., Dr. C. N. Suttner, Baker Bldg., Walla Walla.

Wisconsin: Madison, Jan. 14. Sec., Dr. J. M. Dodd, 220 E. Second St., Ashland.

Maine March Examination

Dr. Frank W. Searle, secretary of the Maine Board of Registration of Medicine, reports the written and practical examination held at Portland, March 13-14, 1917. The examination covered 9 subjects and included 90 questions. An average of 75 per cent. was required to pass. Five candidates were examined, all of whom passed. Three candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Loyola University		(1916)	79
Bowdoin Medical School		(1916)	78
Tufts College Medical School	(1909) 82;	(1915)	83
McGill University		(1916)	92

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Dartmouth Medical School		(1891)	New Hamp.
Cincinnati College of Medicine and Surgery		(1900)	Ohio
University of Vermont		(1912)	Vermont

Alabama July Examination

Dr. S. W. Welch, chairman of the Alabama State Board of Medical Examiners, reports the written examination held at Montgomery, July 9-13, 1917. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. *Forty-four* candidates were examined, of whom 32 passed and 12 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Birmingham Medical College		(1915)	76.3, 79.2
University of Alabama	(1917) 75.9, 77.3, 77.8, 79, 79.4, 79.5, 80, 81.3, 84.1, 84.2, 84.2, 85.4.		
Atlanta Medical College	(1916) 77.2; (1917) 78, 83.8, 84.8.	(1916)	75.4
Chicago College of Medicine and Surgery		(1916)	75.9
Loyola University		(1916)	84.5
University of Louisville		(1917)	76.3, 76.8
Tulane	(1909) 76.8;	(1917)	85.6
Johns		(1916)	87.8
Columbia University	(1916) 85.5;	(1917)	81.8
Jefferson Medical College		(1917)	75.2
Meharry Medical College		(1897)	75.3
University of Nashville		(1917)	75
Vanderbilt University		(1917)	80.6
University of Virginia			

FAILED

Birmingham Medical College (1914) 69, 72.1; (1915) 55.6, 60.1, 72.9.		
North Carolina Medical College	(1917)	69.5
University of Oklahoma	(1914)	72.6
Jefferson Medical College	(1884)	70.9
Meharry Medical College	(1914)	61.3
Memphis Hospital Medical College ......(1899) 69.5;	(1912)	69.1
University of Tennessee	(1915)	69.6

Book Notices

Practical Materia Medica and Prescription Writing, with Illustrations. By Oscar W. Bethea, M.D., Ph.G., F.C.S., Assistant Professor of Materia Medica and Instructor in Prescription Writing, Tulane University of Louisiana. Second Edition. Cloth. Price, $4.50 net. Pp. 562. Philadelphia: F. A. Davis Company, 1917.

The Prescription Therapeutically, Pharmaceutically, Grammatically and Historically Considered. By Otto A. Wall, Ph.G., M.D., Professor of Materia Medica, Pharmacognosy and Botany in the St. Louis College of Pharmacy. Fourth Edition. Cloth. Price, $2.50. Pp. 274, with illustrations. St. Louis: C. V. Mosby Company, 1917.

Pharmacy, Theoretical and Practical, Including Arithmetic of Pharmacy. By Edsel A. Ruddiman, Pharm.M., M.D., Professor of Pharmacy and Materia Medica, Department of Pharmacy, Vanderbilt University. Cloth. Price, $1.75 net. Pp. 267. New York: John Wiley & Sons, 1917.

The first edition of the volume by Bethea was reviewed in The Journal, Nov. 6, 1915, p. 1667, when the purposes of the book and the general treatment of the subject were described. In the second edition the book has been brought up to date, especially with reference to drugs in the United States Pharmacopeia. New ones have been added, and many dropped, "with a sigh of relief," it is said. In addition to naming all of the pharmacopeial preparations and describing many of them, prescriptions are given which illustrate the manner in which these are advantageously prescribed. Errors and incompatibilities are pointed out. There are clinical and general indexes. Attention might be called to a few errors in proofreading of the names of drugs and chemical formulas, and to the frequent occurrence of the split infinitive and other defects of style which have not been eliminated from this edition. Attention is properly directed by the author to the undesirability of the habit of prescribing proprietary drugs, but it is to be noted with reference to prescription writing, that after giving the Latin terminations of many drugs the author says: "They are always abbreviated, so it is suggested that a study of terminations is not necessary." This is a bad suggestion, as is the one that the prescriptions given in the book are in perfect form to be copied and sent to the duggist, a method of prescribing which should not be encouraged.

Leaving out the section on materia medica, Wall's book covers much the same ground in the matter of prescription writing, with examples, etc., as the book by Bethea, but it is more extended. Most interesting is the history, which it gives, of prescription writing from its beginning in ancient days. The author upholds process patents on proprietary drugs, and the specification of the products of a certain manufacturer in a prescription.

Ruddiman has given interesting, practical and useful statements of things the practicing pharmacist should know, but adapted more especially to the use of students. His book is intended to be supplementary to the information gained from the Pharmacopeia and the National Formulary.

Examination of Water, Chemical and Bacteriological. By William P. Mason, Professor of Chemistry, Rensselaer Polytechnic Insitute. Fifth Edition. Cloth. Price, $1.25. Pp. 186, with illustrations. New York: John Wiley & Sons, 1917.

In this new edition of a well known laboratory guide, there has been little change in the chemical analyses described; but the tests for "relative stability," free chlorin, and lime and soda values have been added. The bacteriologic methods have been rewritten to conform to the latest edition of "Standard Methods." Unfortunately the normal chlorin maps referred to in the text have been omitted. The illustrations have been materially improved over those in former editions. Amplification of Appendix A, discussing the interpretation of a water examination, would greatly increase the usefulness of the book for elementary students.

Medicolegal

When Right of Appeal to Courts Obtains

(Brown vs. Harris County Medical Society et al. (Tex.), 194 S. W. R. 1179)

The Court of Civil Appeals of Texas, in reversing a judgment that dismissed the plaintiff's application for injunctive relief against expulsion from the defendant society, says that the trial court sustained a general demurrer to the plaintiff's petition, and on his declining to amend the same, dismissed his suit on the ground that it appeared from the petition that the plaintiff had the right to appeal to the board of councilors of the state association, from the proceeding of the defendant society, and that such appeal made provision for adequate relief. The cause having been disposed of by demurrer, this court was not advised, nor was the trial court advised, otherwise than by the allegations of the plaintiff's petition, as to what provision was made for the trial and expulsion of the members of the defendant society, by its by-laws and rules. Therefore the court is unable to say whether or not the plaintiff was tried and convicted in accordance with the by-laws and rules of the association, or whether or not the appeal provided for would have afforded adequate relief, unless the court does know that in his petition the plaintiff alleged that he was tried on charges presented on the night on which he was tried and convicted; that he had no notice or knowledge of the existence of such charges until after he had presented his defense; and that this trial on such charges was contrary to and in violation of the by-laws and rules of the association. The court also knows that the plaintiff alleged in his petition that the provisions for appeal made by the association were wholly inapplicable and inadequate, and would not afford him any relief for the alleged unlawful conviction and expulsion. If the allegations of the plaintiff's petition were true, he had the right to resort to a court of equity for relief, and the trial court erred in holding to the contrary and dismissing his suit on demurrer; in other words, if the plaintiff's allegation that the board of councilors, the appellate body, had no power to review and reverse the action of the local society, in expelling the plaintiff, in the event they should find that he was not tried in accordance with the by-laws and rules of the association, was true, the appeal provided by the association was inadequate and would not furnish the plaintiff relief from such unlawful conviction and expulsion, and in such case he had the right to resort to the courts for relief. The trial court should have overruled the general demurrer, and have heard evidence as to the facts alleged with reference to the rules of the association governing appeals, and in the event the facts alleged were established, the court should have gone further and heard evidence as to whether the plaintiff was tried and expelled in accordance with the by-laws and rules of said association. It is well settled that where an association under its rules expels a member, such member must resort to, and must exhaust, the remedies provided by the association itself, through its constitution and by-laws, before applying to a court of equity for relief. But this court has found no authority for holding that where a member of a voluntary association has been convicted of an offense and expelled in violation of the rules and by-laws of the association, and where the by-laws and other laws of the association do not allow adequate relief by appeal from such conviction and expulsion, such member may not resort to a court of equity for relief. The court thinks the uniform holding of all courts is to the contrary.

Society Proceedings

American Association of Anatomists, Minneapolis, Dec. 27-29.
American Physiological Society, Minneapolis, Dec. 27-29.
Porto Rico Medical Association, San Juan, Dec. 22-23.
Society of American Bacteriologists, Washington, D. C., Dec. 27-29.
Western Surgical Association, Omaha, Dec. 14-15.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics and Diseases of Women and Children, York Pa.

November, LXXVI, No. 5

1 *Fundal Hysterectomy to Reduce Menstruating Surface. G. K. Dickinson, Jersey City, N. J.—p. 740.
2 *Physical Conditions in Women Warranting Sterilization. E. W. Hedges, Plainfield, N. J.—p. 745.
3 *Prolapse of Uterus. C. L. Bonifeld, Cincinnati.—p. 750.
4 *Operative Treatment of Procidentia. A. T. Jones, Providence, R. I.—p. 752.
5 Cervical Lacerations; Their Significance for Patient. F. Reder, St. Louis.—p. 756.
6 *Acute Dilatation of Uterus; Report of Cases. N. S. Scott, Cleveland.—p. 763.
7 *Carcinoma Occurring in Stump of Cervix, Following Suprapubic Hysterectomy; Report of Cases. E. A. Vander Veer, Albany, N. Y.—p. 771.
8 *Recurrences After "Five-Year Period" in Carcinoma of Cervix. X. O. Werder, Pittsburgh.—p. 776.
9 Radium; Report of Cases. D. C. Moriarta, Saratoga Springs, N. Y.—p. 781.
10 *Mixed Cell Tumor of Kidney Weighing Three Pounds in Infant Ten Months Old. W. E. Darnall, Atlantic City, N. J.—p. 786.
11 *Etiologic Study of Vulvar Carcinoma. F. J. Taussig, St. Louis.—p. 794.
12 Case of Pseudohermaphroditism. H. D. Purdum, Sykesville, Md.—p. 813.
13 Primary Carcinoma of Liver in Childhood; Report of Case. J. Forman, Columbus and J. S. Hattery, Manfield, Ohio.—p. 862.

1—4. Abstracted in The Journal, Oct. 13, 1917, pp. 1293 and 1294.

6. Abstracted in The Journal, Oct. 20, 1917, p. 1377.

7. **Carcinoma of Cervix.**—About sixty-five cases of this kind are now on record. Vander Veer points out that because carcinoma of the cervix does occur in a few cases following suprapubic hysterectomy, it is not a point in favor of a panhysterectomy exclusively. The dangers of a panhysterectomy are greater than the risk of a carcinoma occuring secondarily in the cervical stump and being promptly treated. A careful examination should be made of every cervix before the hysterectomy is performed, particularly in women who have borne children. In every case of hysterectomy, the patient should be advised to report promptly if there is any appearance of a vaginal discharge, a curettment done, and a laboratory examination made. Removal of the cervix per vaginam is certainly to be perferred to opening the abdomen in every case in which the disease has not progressed too far, as well as in cases having any discharge. Routine pathologic examination of the myomatous uterus at the time of operation should be done, and in this way unsuspected cases of carcinoma of the uterus, also of the cervix, will be discovered and the proper operation then performed.

8. Abstracted in The Journal, Oct. 27, 1917, p. 1466.

10. Abstracted in The Journal, Oct. 20, 1917, p. 1378.

11. **Study of Vulvar Carcinoma.**—The fifteen observations of vulvar cancer made by Taussig illustrate the great malignancy of cancer in younger individuals. Of special interest was the fact that of the five whose age was under 45 years, two had had operations that brought on artificial menopause and these two were by far the most malignant in this series. Previous pregnancies would not seem to be a factor in their development, for six of the fifteen women had had no children and three of them had never been married. The inguinal or femoral lymph glands were involved with certainty in nine of the fifteen women. Only one of these nine women is at present living and this one was operated on only four months ago so that the probability is that she also will die of a recurrence. Taussig says that the fact that no cancer was found in the lymph glands in some of these cases by no means proves that a small nest of cancer cells was not tucked away in some unexamined portion of the tissue removed. Clinical experience shows that in almost every case of vulvar cancer, even in the earliest stages the lymph glands are involved. Even after radical removal of the lymph glands with the vulvar mass, the chance for a reappearance of the cancer in the glandular system is three times greater than is the local recurrence.

American Journal of Orthopedic Surgery, Boston

November, XV, No. 11

14 Volkmann's Contracture: Interstitial Myositis; Report of Cases. A. Steindler, Iowa City, Iowa.—p. 741.
15 The 1916 Maryland Epidemic of Infantile Paralysis. R. T. Taylor, Baltimore.—p. 759.
16 Subperiosteal Fissure Fractures of Tibia in Children; Report of Cases. S. Kleinberg, New York.—p. 764.
17 Combined Medical and Postural Examination of Seven Hundred and Forty-Six Young Adults. L. T. Brown, Boston.—p. 774.
18 Orthopedic Innersole for Shoes. H. W. Marshall, Boston.—p. 788.

Annals of Surgery, Philadelphia

November, LXVI, No. 5

19 *Treatment of Staphylococcus Septicemia by Transfusion of Immune Blood. R. S. Hooker, New York.—p. 513.
20 *Persistence of Bacteria within Sequestrums. K. Taylor and M. Davies, Paris.—p. 522.
21 *Case of Diabetes Insipidus as Sequel to Gunshot Wound of Head. E. A. Graham, Mason City, Iowa.—p. 529.
22 *Traumatic Brachial Paralysis with Flail Shoulder Joint; Report of Fourteen Cases. T. T. Thomas, Philadelphia.—p. 532.
23 Case of Myxofibromas of Abdominal Wall. K. S. J. Hohlen, Lincoln, Nebr.—p. 555.
24 Two Cases of Gallstones in Infancy and Childhood. D. N. Eisendrath, Chicago.—p. 557.
25 Four Kinds of Appendicitis. R. T. Morris, New York.—p. 560.
26 *Enterostomy and Use of Omentum in Prevention and Healing of Fistula. C. H. Mayo, Rochester, Minn.—p. 568.
27 Histopathology of Twenty-Six Cases of Carcinoma of Testicle. S. H. Geist and W. Thalhimer, New York.—p. 571.
28 University Hospital Shoulder Splint. S. Pope, San Francisco.—p. 581.
29 *Evaluation of Asepsis and Antisepsis. W. F. Fowler, Rochester, N. Y.—p. 583.

19. **Treatment of Septicemia by Transfusion.**—Five cases of transfusion of immune blood for staphylococcus infection are reported and analyzed by Hooker. In four the donors were immunized. The results obtained are decidedly in favor of the efficacy of immunized blood transfusion in chronic staphylococcus septicemias, and especially in those which complicate bone conditions. In this class of cases there is usually ample time to prepare a suitable donor by administration of vaccines, but if the anemia is pronounced no time should be lost in performing a preliminary transfusion of normal blood. In the acute infections, early blood cultures and an immediate start to immunize a donor are of the utmost importance. If urgent, it is best not to wait for full immunization but to give the first transfusion even after one dose of vaccines. If the patient has a fairly good blood volume with a high bacterial blood content, there should be no hesitation in removing a considerable amount of blood by venesection just before transfusion.

20. **Bacteria Within Sequestrums.**—In about 90 per cent. of the specimens of bone examined histologically by Taylor and Davies bacteria were seen lying well within the substance of the sequestrum, usually in nests within the canals or cell spaces. The organisms were recovered more frequently from the sequestrum than from the wound, suggesting a richer flora within the former. One point, however, is especially evident, and that is the greater incidence of the anaerobic group within the sequestrum. Gas-forming anaerobes developed nearly four times more often from the bone than from the wound, while spores were present six times more often. In no case were gas or spore-producing anaerobes recovered from the wound when not recovered from the sequestrum removed from it. The bone itself appears to be the most common site for the persistence of the anaerobic flora. Anaerobic bacilli are probably active factors in the disintegration of sequestrums within the wound. Anaerobic bacilli within the dead bone appear to be associated with the occurrence of "flares" after operations on bones. Flares occurred more frequently after sequestrectomy when the cases were over 120 days old than when the cases were under that age. The authors believe that it is probably impossible to kill by antiseptic treatment the bacteria within the dead bone. The object of treatment must be to remove this focus of infection. The sequestrums may be extracted by operation, or their dis-

appearance hastened by utilizing the solvent action of acid dressing solutions. The persistence of bacteria within the bone probably explains the infection which often follows bone grafts in old compound fractures, and indicates the advisability of postponing that operation as long as practicable.

21. **Diabetes Insipidus After Head Wound.**—Graham's case is of interest because it seems to bring additional support to the idea that diabetes insipidus is an expression of a disturbance of function of the hypophysis or its neighboring tissue.

22. **Traumatic Brachial Paralysis.**—The purpose of this paper is to confirm, by further clinical experience, the conclusion reached six years ago on this phase of traumatic brachial paralysis, that is, that the flail shoulder joint is the result of a dislocation and is essentially the cause and not the result of the paralysis. This is shown by the fact that the early operative removal of the flail shoulder results in a cure of the paralysis. If the paralysis and flail shoulder had been caused by a rupture of the brachial plexus, recovery would not have followed, uniformly, treatment restricted to the shoulder joint. According to Thomas's experience, in most cases of traumatic brachial paralysis the shoulder joint is not in the least flail, but on the contrary exhibits limited movement and pain when movement is made. In view of the large number of cases of obstetric palsy reported, hundreds of them in recent years, Thomas is inclined to doubt its occurrence. If it does not occur it then becomes necessary for those who account for the obstetric paralyses by an injury of the brachial plexus to explain the absence of flail shoulder in this class of cases.

26. **Enterostomy in Healing of Fistula.**—Mayo proceeds as follows: A low-lying loop of distended bowel is elevated into the incision. A segment is freed of gases or fluids and controlled by rubber-covered forceps applied above and below mesentery a purse-string suture of silk is applied in a diameter of half an inch. The bowel is perforated in the center of the point selected for perforation. At a point opposite the the purse string by a knife or cautery. A catheter, size 10 or 12, is inserted several inches into the intestine and held in place after the purse string is tied, by perforating its side with the same needle and tying it into place. Two successive purse-string sutures may be applied by the Stamm-Kader method, but the procedure most satisfactory is that of Witzel, that is, depressing the catheter into the wall of the bowel and suturing together the folds thus formed over the catheter for a space of an inch and a quarter. When the operation is made as a jejunostomy for feeding or for intestinal obstruction in children the Coffey method of incising the peritoneal and muscular layers of the bowel at the point of depressing the catheter into its wall conserves the lumen of the intestine, the tube being placed between the mucosa and the wall of the intestine, and the peritoneum and muscle being approximated over the catheter. This method is rarely followed by a fistula. For additional security and also to favor closure of the opening, pass the catheter through the perforated omentum and then for fixation include the parietal peritoneum, the omentum and the intestine in three sutures. This method maintains a movable, even if adherent, intestine and the omental graft aids in closing the bowel opening by granulation.

29. **Evaluation of Asepsis and Antisepsis.**—Fowler's investigation of the value of various antiseptics and methods of antisepsis discloses abundant clinical evidence of the efficacy of iodin in skin sterilization, this evidence being corroborated by laboratory findings; the germicidal action of mercuric chlorid is too slow to be of value in sterilization of the skin. Eternal vigilance is the price of asepsis.

Archives of Internal Medicine, Chicago

November, XX, No. 5

30 *Renal Function in Gout. C. W. McClure, Boston.—p. 641.
31 Amyotonia Congenita of Oppenheim: Report of Six Cases, Full Review of Literature. M. S. Reuben, New York.—p. 657.
32 Diagnostic Signs from Scaleni, Intercostal Muscles and Diaphragm in Lung Ventilation. C. F. Hoover, Cleveland.—p. 701.
33 Serum Changes Following Protein "Shock" Therapy. W. F. Petersen, Chicago.—p. 716.
34 *Ventricular Fibrillation in Man with Cardiac Recovery. G. C. Robinson and J. F. Bredeck, St. Louis.—p. 725.
35 Localized and Interlobar Pneumothorax Complicating Pulmonary Tuberculosis; Report of Cases. M. Fishberg, New York.—p. 739.
36 *Studies on Blood Sugar. L. Hamman and I. I. Hirschman, Baltimore.—p. 761.
37 Kidney Function in Diabetes Mellitus. R. Fitz, New York.—p. 809.

30. **Renal Function in Gout.**—McClure is of the opinion that the apparently frequent occurrence of decreased renal function in cases of typical gout justifies a word of caution against assuming that the faulty excretion of uric acid and of other nitrogenous substances when found is due to derangements in metabolism. The gouty kidney is often functionally deficient, hence the faulty elimination of exogenous uric acid and of other nitrogenous substances by gouty persons may be the result of depression of the functional power of the kidneys. While renal retention explains many of the anomalies occurring in the excretion of uric acid and of other nitrogenous substances in gout, nevertheless this does not explain the nature of gout, nor does it preclude the possibility of there being an underlying perversion of metabolism. The purpose of this discussion has been to emphasize the facts that (1) many of the findings which have heretofore been considered due to disturbances of nuclein metabolism in gout may be explained as the result of renal inadequacy, and (2) that the theories concerning the etiology of gout remain hypotheses without satisfactory experimental bases.

34. **Ventricular Fibrillation in Man with Cardiac Recovery.**—A case is reported by Robinson and Bredeck in which the patient showed marked cardiac insufficiency and had three attacks of cardiac syncope. During one of these attacks an electrocardiogram was obtained which is typical of ventricular fibrillation. The patient lived thirty hours after this syncopal attack, and numerous electrocardiograms were obtained during this time. One immediately after the intravenous injection of strophanthin showed a deranged cardiac mechanism similar to that observed experimentally by Levy and Lewis during the so-called state of potential fibrillation. The abnormal forms of ventricular complex which occurred frequently, were such as to indicate that there was a derangement of intraventricular conductivity. This may have been the prime factor in the production of the ventricular fibrillation. The occurrence of ventricular complexes indicative of derangement of intraventricular conductivity should be taken as contraindication for the use of drugs such as chloroform, epinephrin and strophanthin, which predispose the heart to ventricular fibrillation. The foregoing case is the first example of cardiac recovery from well established ventricular fibrillation that has been observed in man.

Archives of Ophthalmology, New Rochelle, N. Y.

November, XLVI, No. 6

38 Antigenic Properties of Uveal Tissue as Shown by Complement Fixation. A. C. Woods, Philadelphia.—p. 503.
39 Case of Aneurysm of Internal Carotid Artery (Intracranial Portion) and Its Effect on Patient's Vision. J. R. Shannon, New York.—p. 518.
40 Supernumerary Orbital Muscles. C. C. Rush and J. P. Schaeffer. Philadelphia.—p. 524.
41 Case of Total Loss of Vision in One Eye and Partial Loss in Other Completely Relieved by Sellar Decompression Operation. W. R. Parker, Detroit.—p. 528.
42 Case of Hemorrhage into Optic Nerve Sheaths as Direct Extension from Diffuse Intrameningeal Hemorrhage Caused by Rupture of Aneurysm of Cerebral Artery. F. H. Doubler and S. B. Marlow, Boston.—p. 533.
43 Quantitative Perimetry; Practical Devices and Errors. C. B. Walker, Boston.—p. 537.
44 Heterochromia Iridis, Heterochromic Cyclitis and Allied Conditions. E. C. Ellett, Memphis, Mass.—p. 562.

Bulletin of Johns Hopkins Hospital, Baltimore

November, XXVIII, No. 321

45 *Histological Study of Fifty Uteri Removed at Cesarean Section. J. W. Williams, Baltimore.—p. 335.
46 *Adenomyoma of Rectovaginal Septum. T. S. Cullen, Baltimore.—p. 343.
47 *Hematomas of Ovary, Including Corpus Luteum Cysts. E. Novak, Baltimore.—p. 349.

45. **Fifty Uteri Removed at Cesarean Section.**—During the past twenty years Williams has had occasion to amputate the body of the uterus supravaginally and to treat the stump extraperitoneally in fifty cases following delivery by cesarean section. In each instance the specimen has been preserved and subjected to careful histologic examination. The study of this comparatively large material has yielded important information concerning a number of questions; more particularly concerning the mechanism of the separation of the placenta and of the fetal membranes; the amount of decidua retained immediately postpartum; the vascular changes at the placental site; the retraction of the uterine muscle; the occurrence of ascending infection in patients who had been long in labor, or who had been repeatedly examined by persons neglecting rigorous hand disinfection; and finally concerning the characteristics of the cicatrix resulting from previous sections, and its bearing on the correctness of the dictum—"Once a cesarean always a cesarean." But, Williams says, that the evidence at his disposal indicates that the healing of cesarean section wounds is generally satisfactory, provided the convalescence has been normal, and ordinarily does not call for a repetition of the procedure unless definitely indicated by the existence of extreme disproportion or some other conditions. On the other hand, in patients in whom the convalescence has been abnormal, it is probable that the cicatrix will be greatly thinned out and will offer a locus minoris resistentiae. In such cases, a repeated cesarean section may be indicated for the express purpose of avoiding a subsequent rupture. Williams' experiences, however, shows that this is not inevitable and that even should it occur, satisfactory results should follow prompt operation. For practical purposes, therefore, Williams concludes that the behavior of the cicatrix can be regarded with equanimity provided the previous convalescence has been normal, but when it has been disturbed there is a reasonable probability of the occurrence of rupture, and that such patients should be kept under the closest observation during the last months of a succeeding pregnancy.

46. Abstracted in The Journal, Aug. 5, 1916, p. 401.

47. **Hematomas of Ovary, Including Corpus Luteum Cysts.**—A careful study of the menstrual histories of the cases on which Novak's paper is based shows that the hemorrhage which cause follicular hematomas occurs characteristically at or near the supposed time of ovulation, that is, between the seventh and sixteenth days of the menstrual cycles. The bleeding of corpus luteum origin, as might be expected, occurs later, being apparently only an exaggeration of that normally occurring in the stage of vascularization. There is no characteristic menstrual history associated with the presence of hematomas in the ovary.

California State Journal of Medicine, San Francisco

November, XV, No. 11

48 Vegetative Nervous System in Relation to General Medicine. F. M. Pottenger, Monrovia.—p. 440.
49 Report of Forty-Four Appendicitis Operations in Children Under Fourteen Years of Age. E. K. Willits and M. I. Judell, San Francisco.—p. 444.
50 Intranasal Cosmetic Surgery with Special Reference to Rib with Cartilage and Cartilage Transplants. G. Selfidge, San Francisco.—p. 445.
51 Diagnosis and Treatment of Acidosis, Especially in Diabetes. A. H. Rowe, Oakland.—p. 451.
52 Etiology of Pellagra. J. E. Jennison, San Diego.—p. 456.
53 Malingering; Its Diagnosis and Significance. J. H. Catton, San Francisco.—p. 458.
54 Remote Effects of Brain Trauma. H. W. Wright, San Francisco.—p. 462.
55 Later Developments Along Immunologic Lines. R. A. Archibald, Oakland.—p. 464.

Georgia Medical Association Journal, Augusta

October, VII, No. 6

56 Early and Late Gastric Cancer as Shown by Roentgen Ray. G. M. Niles, Atlanta.—p. 109.
57 Tumors of Gums. J. L. Campbell, Atlanta.—p. 112.
58 Roentgen Examination of Stomach, Duodenum and Appendix. J. S. Derr, Atlanta.—p. 116.
59 Modern Artificial Infant Feeding—Simple, Practical and Scientific. W. A. Mulherin, Augusta.—p. 124

Illinois Medical Journal, Chicago

November, XXXII, No. 5

60 Individualization in Treatment of Surgical Inflammations. E. H. Ochsner, Chicago.—p. 305.
61 Report of Interesting Case in Its Relation to So-Called Traumatic Hernia. C. R. G. Forrester, Chicago.—p. 308.
62 Pyelocystitis in Infancy and Childhood. H. F. Helmholz, Evanston.—p. 311.
63 Importance of Nasal Affections in General Practice. N. Schoolman, Chicago.—p. 314.
64 Ileus. C. Langer, Chicago.—p. 317.
65 Some Bodily Effects of Depressing Emotions. M. Solomon, Chicago.—p. 322.
66 Nasal Dysmenorrhea and Genital Areas of Nose. L. E. Barnes, Chicago.—p. 326.
67 Points and Pointers. G. W. Nesbitt, Sycamore.—p. 330.
68 Diagnosis and Treatment of Moral Diseases. E. N. Stenn, Chicago.—p. 337.
69 Psychotherapy in Obstetrics. H. W. Long, Elmwood.—p. 339.
70 Foreigner; Prey of Medical Quacks. H. R. Krasnow, Chicago.—p. 342.
71 Asthma. R. H. Brown, Chicago.—p. 345.
72 Goiter, Diagnosis and Treatment. L. F. Watson, Chicago.—p. 350.
73 Indications for Operation in Acute Mastoid Disease. G. H. Mundt, Chicago.—p. 352.
74 Intestinal Stasis. G. B. Kelso, Bloomington.—p. 256.

Iowa State Medical Society Journal, Des Moines

November, VII, No. 11

75 Surgery of Thyroid. E. S. Judd, Rochester, Minn.—p. 403.
76 Goiter, Use and Misuse of Treatment. E. Grimes, Des Moines.—p. 407.
77 Symptoms of Acute Infectious Osteomyelitis. H. L. Beye, Iowa City.—p. 410.
78 Choice of Operation in Cholelithiasis and Chronic Cholecystitis. J. E. O'Keefe, Waterloo.—p. 412.
79 Significance of Mucous Membrane Disturbances in Upper Respiratory Tract. F. G. Murphy, Mason City.—p. 416.
80 Supervision of Public Water Supplies by Health Officer. J. J. Hinman, Jr., Iowa City.—p. 417.

Journal of Biological Chemistry, Baltimore

November, XXXII, No. 2

81 Adaptation of Winkler's Method to Biologic Work. W. J. V. Osterhout and A. R. C. Haas, Cambridge.—p. 141.
82 Diffusion of Electrolytes Through Membranes of Living Cells. Additive Effect of Salt and Base and Antagonistic Effect of Salt and Acid. J. Loeb, New York.—p. 147.
83 *Determination of Small Amounts of Calcium, Particularly in Blood. J. O. Halverson and O. Bergeim, Philadelphia.—p. 159.
84 *Calcium Content of Blood Serum in Certain Pathologic Conditions. J. O. Halverson, H. K. Mohler and O. Bergeim, Philadelphia.—p. 171.
85 *Biologic Analysis of Pellagra-Producing Diets. Minimum Requirements of Two Unidentified Dietary Factors for Maintenance as Contrasted with Growth. E. V. McCollum and N. Simmonds, Madison, Wis.—p. 181.
86 Probable Accuracy, in Whole Blood and Plasma, of Colorimetric Determinations of Creatinin and Creatin. A. Hunter and W. R. Campbell, Toronto.—p. 195.
87 *Micromethod for Determination of Calcium and Magnesium in Blood Serum. W. M. Marriott and J. Howland, Baltimore.—p. 233.
88 *Micromethod for Determination of Inorganic Phosphates in Blood Serum. W. M. Marriott and F. H. Haessler, Baltimore.—p. 241.
89 *Iron as Antidote to Cottonseed Meal Injury. W. A. Withers and F. E. Carruth, West Raleigh, N. C.—p. 245.
90 Some Factors Influencing Respiration of Ground Nervous Tissue. C. G. MacArthur and O. C. Jones, San Francisco.—p. 259.
91 Direct and Indirect Calorimetry of Cassiopea Xamachana. Effect of Stretching on Rate of Nerve Impulse. J. F. McClendon, Minneapolis.—p. 275.

83. **Determination of Calcium in Blood.**—The authors suggest the precipitation of calcium as oxalate directly in the filtrate from biologic fluids after removal of protein, the final estimation being carried out by a refinement of the permanganate titration method. In this paper is presented in greater detail the procedure which experience with this method has suggested as well as data with regard to the accuracy of estimation.

84. **Calcium Content of Blood Serum.**—Data are presented by the authors with regard to the calcium content of human blood serum in certain pathologic conditions, particularly nephritis, as well as of the blood serum of normal men. In the normal cases values lying between 9 and 11 mg. of calcium per hundred cubic centimeters were obtained. In nearly all of the pathologic conditions studied, including cases in which the blood clotted with extreme slowness, a similar range was observed, indicating a great constancy of this element in the blood serum. Distinct decreases were

noted in cases of hematogenous jaundice, eclampsia, pneumonia and particularly uremia. In several cases of uremia increases in serum calcium were noted on improvement in the clinical condition and following administration of calcium lactate. The urinary calcium excretion in severe nephritis was found to be low and calcium lactate administration brought about but slight absolute increases. In cases in which marked general edema occurred, with or without nephritis, the excretion of calcium was unaffected by increased ingestion. In a case of pernicious vomiting of pregnancy with severe acidosis, alkali administration decreased calcium excretion to 8 per cent. of its original value. It is pointed out that calcium determinations on whole blood are of little value unless the relative volume of plasma and corpuscles is known.

85. **Pellagra Producing Diets.**—McCollum and Simmonds believe that there are two deficiency diseases in the sense in which Funk employed this term. One of these is polyneuritis, which Funk recognized. This is due to a lack of an adequate supply of the unidentified water soluble B which is abundant in all natural foodstuffs but is practically absent from purified starch, polished rice, sugars, and all fats of both animal and vegetable origin. The other is a syndrome in which the two most prominent features are emaciation and xerophthalmia. Scurvy, pellagra and rickets can be accounted for by errors in the diet without assuming a protective substance for each of them.

87. **Calcium and Magnesium in Blood Serum.**—By the methods described by Marriott and Howland it is said to be possible to determine calcium and magnesium in 2 c.c. samples of serum with a maximum error of less than 5 per cent., a degree of accuracy entirely sufficient for the purposes for which the methods were devised. The methods depend on the fact that solutions of ferric thiocyanate are decolorized by oxalates and by phosphates. Calcium is precipitated as the oxalate and magnesium as the ammonium magnesium phosphate; the precipitates are dissolved in acid and added to solutions of ferric thiocyanate, the degree of decolorization resulting being determined by comparison in small Nessler tubes.

88. **Phosphates in Blood Serum.**—This method was devised by Marriott and Haessler in order to determine whether or not a retention of inorganic phosphates, with a resulting increase of these substances in the blood serum, occurs in patients suffering from certain types of nephritis. Results obtained by the use of the method in such cases have already appeared. The method depends on the decolorization of solutions of ferric thiocyanate by an acid solution of ammonium magnesium phosphate. The phosphates of the serum are precipitated directly by means of magnesia mixture.

89. **Iron as Antidote to Cottonseed Meal Injury.**—Feeding experiments with pigs showed that iron salts have a decidedly beneficial action in preventing cottonseed meal injury. Much larger quantities of meal are consumed, deaths have been postponed or averted, and better gains have been made when an iron salt is added to the feed. The suggestion is made by Withers and Carruth that the iron salts combine with, or facilitate oxidation of the harmful substances in cottonseed meal. By thus controlling the toxic factor, it is shown that cottonseed meal injury is not due to a lack of vitamins or to deficiencies in calcium, sodium and chlorin—which ash analyses might lead one to suspect as the limiting mineral factors in a diet of cottonseed meal and corn.

Maine Medical Association Journal, Portland

November, VIII, No. 4

92 Modern Anesthesia. O. E. Haney, Portland.—p. 91.

Medical Record, New York

November 17, XCII, No. 20

93 Epizootic of Poliomyelitis Among Dogs. H. Greeley, Brooklyn and W. L. Johnson, Jamaica.—p. 839.
94 Partial Thyroidectomy: Operation for Transplanting and Anchoring Remaining Lobes of Thyroid. E. V. Hubbard, New York.—p. 842.
95 Results of Treatment of Tuberculosis by Means of Bacillus Destroying Compound. (Echinacea; Inula.) V. Von Unruh, New York.—p. 847.
96 Value of Roentgenology in Head Injuries. G. W. Welton, New York.—p. 852.
97 New Suspension Method of Treatment of Infantile Paralysis. R. Bernard, Chicago.—p. 854.
98 Plea for More Cesarean Sections in Selected Cases. Thirty-Four Consecutive Cases without Mortality to Mother or Child. G. P. Coopernail, Bedford.—p. 856.

Military Surgeon, Washington, D. C.

November, XLI, No. 5

99 How Medical Services of Government May Best Cooperate in Time of War. L. A. La Garde and others.—p. 552.
100 Study of About Two Thousand Physical Examinations of Officers and Applicants for Commission Made at Army Medical School. C. H. Goddard.—p. 578.
101 Some Aeromedical Observations. R. N. Greene.—p. 589.

Modern Hospital, St. Louis

November, IX, No. 5

102 Contagious Disease Hospital for Immigrants at Ellis Island, N. Y. J. G. Wilson, New York.—p. 313.
103 Controlling Basis for Economical Use of Supplies. H. J. Moss, Baltimore.—p. 318.
104 Hospital Problem of Today—What Is It? J. A. Hornsby, Chicago.—p. 322.
105 Oil as Fuel in Institutions. J. M. Peters, Providence, R. I.—p. 328.
106 Reducing Hazard to Life in Nonfireproof Hospital Buildings. H. F. J. Porter, New York.—p. 333.
107 Publicity as a Means of Education and Support. G. D. Greene, New York.—p. 336.
108 Standardization of Hospitals—Class V, Small Semipublic Community Hospitals. J. A. Hornsby and others.—p. 341.
109 Municipal Training Schools for Nurses. C. H. Shutt, St. Louis.—p. 354.

New Jersey Medical Society Journal, Orange

November, XIV, No. 11

110 Protein Poison in Health and Disease. V. C. Vaughan, Ann Arbor, Mich.—p. 417.
111 Study of Tuberculous Lung Lesions as Revealed by Roentgen Ray Plates and Value of These in Physical Diagnosis. H. K. Dunham, Cincinnati.—p. 424.
112 Psychologic Handling of Tuberculous Patient. C. L. Minor, Asheville, N. C.—p. 427.

New York Medical Journal

November 17, CVI, No. 20

113 Roentgen Ray in Diagnosis of Pneumonia, Pleural Diseases and Pulmonary Tumors. M. Manges, New York.—p. 917.
114 Labyrinthine Vertigo and Past-Pointing. W. A. Wells, Washington, D. C.—p. 921.
115 New Conception of Arteriosclerosis. I. L. Nascher, New York.—p. 924.
116 Suprapubic Prostatectomy with Mechanical Drainage. C. W. Shropshire and C. Watterston, Birmingham, Ala.—p. 928.
117 Wassermann Reaction in Duplicate. M. Schulman, New York.—p. 929.
118 Case of Acute Erythematous Lupus. G. A. Brown, Philadelphia.—p. 931.
119 Case of Amyotrophic Lateral Sclerosis in Form of Progressively Developing Triplegia. G. B. Hassin, Chicago.—p. 932.
120 Functional Inefficiencies of Teeth Associated with Occlusal Anomalies. M. Hellman, New York.—p. 935.

Northwest Medicine, Seattle

November, XVI, No. 11

121 History of Idaho State Medical Association. E. E. Maxey, Boise, Ida.—p. 323.
122 Historical Sketch of Utah State Medical Association. W. B. Ewing, Salt Lake City.—p. 328.
123 Ocular Headache. D. H. Bell, Tacoma.—p. 331.
124 First Aid in Eye Injuries. W. D. Donoher, Salt Lake City.—p. 334.
125 Sinus Disease and Otitis Media in Epidemic Influenza. J. S. Davies, Tacoma.—p. 336.
126 Removal of Tonsils as Prophylactic Measure in All Children of Four Years of Age, Why and Now. R. W. Perry, Seattle.—p. 339.
127 Health Insurance Legislation and Specialist. R. A. Fenton, Portland, Ore.—p. 342.
128 Spina Bifida. E. O. Jones, Seattle.—p. 344.

Ohio State Medical Journal, Columbus

November, XIII, No. 11

129 Cancer of Uterus. J. F. Baldwin, Columbus.—p. 710.
130 Purpura Hemorrhagica. E. W. Mitchell, Cincinnati.—p. 712.
131 Clinical Significance of Muscular Headaches. W. Mithoefer, Cincinnati.—p. 716.
132 Treatment of Diphtheria Carriers. H. O. Ruh and others, Clevealnd.—p. 719.
133 Medical License, Medical Practice and Legislation. H. Wright, Cleveland.—p. 725.

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Public Health Journal, Toronto

November, VIII, No. 11

134 Social Aspects of Venereal Disease Problem. G. Bates and others, Toronto.—p. 287.
135 Technic of Bordet-Wassermann Reaction for Use in Public Health Laboratories. H. K. Detweiler, Toronto.—p. 292.
136 Military Aspect of Venereal Disease Problem in Canada. F. S. Patch, Montreal.—p. 301.
137 Plan for Instruction in Hygiene, Preliminary Medical Inspection of Students and Free Dispensary or Hospital Treatment in Canadian Universities. J. G. Fitzgerald, Toronto.—p. 304.

Tennessee State Medical Association Journal, Nashville

November, X, No. 7

138 Glaucoma. E. C. Ellett, Memphis.—p. 263.
139 Simple and Radical Mastoid Operations. H. E. Christenberry, Knoxville.—p. 271.
140 Hyperchlorhydria as Clinical Entity. G. M. Niles, Atlanta.—p. 275.
141 Curability of Syphilis. W. A. Oughterson, Nashville.—p. 279.
142 What Profession Can Do Toward Stimulating Health Work in Laity. W. Krauss, Memphis.—p. 282.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

November 3, II, No. 2966

1 *Injuries to Peripheral Nerves and Their Treatment. B. Moynihan.—p. 571.
2 *Surgical Treatment of Severe Penetrating Wounds of Chest in Casualty Clearing Station. J. Anderson.—p. 575.
3 *Surgical Treatment of Severe War Wounds of Chest. J. E. H. Roberts and J. G. Craig.—p. 576.
4 Notes in Connection with Above Articles on Surgery of Chest. H. M. W. Gray.—p. 580.
5 Plastic Transcostal Thoracotomy. E. M. Cowell.—p. 581.
6 *Early Operative Treatment of Penetrating Gunshot Wounds of Chest. F. J. Hathaway.—p. 582.
7 *Treatment of Gunshot Wounds of Elbow Joint; Plea for Primary Excision. C. M. Moullin.—p. 583.

1. **Treatment of Injuries to Peripheral Nerves.**—Moynihan summarizes his experience in this field of work as follows: The earliest examination should be made of all wounds in which division of a nerve trunk is probable. If at the casualty clearing station such a lesion is found, end-to-end suture should be adopted forthwith. This is more likely to be possible in cases in which primary suture of the wound, after excision is found practicable. If secondary suture of the wound after the Carrel-Dakin method has been practiced is to be undertaken, the union of divided nerves should be secured at the same time. If these methods have been attempted and have failed, they do not prejudice the later union of the nerve. On the contrary, they probably ensure that an easier and more satisfactory operation can then be practiced. Throughout the whole period before late nerve suture is attempted the strictest attention must be paid to the relaxation and nutrition of all paralyzed muscles, to the maintenance of suppleness in all joints moved by these muscles, and to the preservation of the integrity of the skin. Operations on nerve trunks demand the most scrupulous observance of the ritual of asepsis. There must be the greatest gentleness of manipulation; the nerve must not be injured by instruments or by the surgeon's finger; it must not be separated from its sheath or disturbed overmuch from its bed; it must not be chilled or allowed to dry. All sutures must be of fine catgut, and introduced with most punctilious accuracy. Axial rotation of the nerve must be avoided. The cut ends of the nerve before approximation must show clearly the fibers of which the trunk consists. Nerve grafting is of little or no value; nerve anastomosis is to be sharply condemned; the turning down of flaps from the nerve to bridge a wide gap is useless. Tendon transplantation is of great value in cases in which nerve suture is impossible, or has given a result not entirely satisfactory.

2. **Surgical Treatment of Wounds of Chest.**—Wounds of the chest, as seen at an advanced casualty clearing station, are classified by Anderson into two main groups from the point of view of prognosis: Group A: 1. Entrance and exit bullet wounds. 2. Entrance and exit shrapnel-ball wounds. 3. Wounds caused by small fragments of high explosive missiles. As a general rule these cases do exceedingly well if treated expectantly and aspirated or operated on when occasion demands. They can usually be evacuated to the base in from three to ten days, and the ultimate results are good. Of course, in a certain proportion of such cases there is sufficient visceral injury to cause immediate or early death, but, as they seldom reach the casualty clearing station, they do not come within the scope of this paper. Group B: 1. Wounds caused by large irregular fragments of high explosive shell which have lodged in the thorax. These are almost always associated with (*a*) clothing and infection carried in, and (*b*) open sucking wounds of the chest wall. 2. Tangential wounds of the thorax, enfilading the ribs and driving portions of bone, etc., into the pleura and lung. 3. Entrance and exit bullet wounds in which the exit wounds are explosive in character.

If treated expectantly only a very small percentage of Group B 1 reach the base, and many of those that are evacuated appear to die from the complications of their wounds. In Group B 2 and 3 the prognosis is usually not so severe, but an unduly large percentage develop an infected hemothorax unless the chest wall wound is treated energetically. In the latter group the prognosis, when no operation is performed, is always worse in wounds of parts where there is a liberal muscle covering, for example, in the scapular region. The patients in Group B usually have died hitherto at the casualty clearing station from sepsis and exhaustion, and it is this group of cases which demands more vigorous surgical intervention.

3. **Id.**—The principles Roberts and Craig have tried to follow in the treatment of chest wounds recently dealt with have been: operation at the earliest possible moment, free excision of all infected tissues, removal of the foreign body and cleansing of the pleural cavity or wound of the lung, followed by accurate suture of the lining membrane and tissues over it, whenever possible without drainage. Drainage of the pleural cavity has been employed only when one or other of these principles could not be fulfilled, for example, when a large foreign body, with infection around it, could not be removed. When anaerobic infection of the superficial muscles is present the wound is left open to an extent corresponding to the area of the infection, for example, in the case of a wound of the back when the more superficial muscles alone are infected it is possible to suture the pleura and leave the superficial part of the wound freely drained. There does not seem to be grave objection to washing out with, and possibly leaving inside the pleura, a few ounces of a nonirritating antiseptic, such as alkaline solution of sodium hypochlorite (Dakin's) or other similar solution, but the necessity for this is by no means established.

6. **Id.**—The ideal methods of modern war surgery are (1) early operation, (2) complete excision of wound and damaged tissues, (3) removal of metal fragments and clothing, (4) mechanical cleansing of wound (the use of strong antiseptics is to be avoided), and (5) complete suture of wound. Provided one can get early and complete operation, there is far more danger from secondary than from primary infection. The treatment of wounds of the chest, therefore, follows the same lines as those of the abdomen, head, knee, or other joints; they require just as early operation, and, Hathaway says, the results are just as good.

7. **Treatment of Gunshot Wounds of Elbow Joint.**—The results of primary excision of the elbow joint, according to Moullin, are wonderfully good, provided sufficient bone is removed; that is to say, the lower end of the humerus just above the level of the epicondyles, the whole of the head of the radius and the ulna at the same level. Even if the conditions are such that the wound is already infected, the drainage is so free that a serious degree of sepsis can usually be avoided, and there is not that enormous mass of callus thrown out, binding everything together and locking the fragments so that they cannot move. Owing to the necessity of reeducating the muscles of the forearm, which have been separated from their attachments, it may be twelve months before recovery is complete, but the fingers and wrist can be used after the first few weeks, and, if a suitable splint is provided, the elbow as soon as the wound is sound.

Glasgow Medical Journal

October, LXXXVIII, No. 4

8 Two Cases of Friedreich's Ataxia in Adolescents. J. Fergus.—p. 193.
9 Dissolving Senile Cataract in Early Stages. W. B. I. Pollock.—p. 208.
10 *Cases of Rupture of Uterus and Cesarean Section. J. H. Martin.—p. 214.

10. Rupture of Uterus and Cesarean Section.—Martin's first case was one of rupture of uterus in the fourth month of pregnancy. The fetus was forced between the layers of the broad ligament. Manual removal of uterine contents was performed. The second case was one of cesarean section on the second day of labor. The membranes ruptured several hours before. The outcome was a live child and recovery of the mother.

Lancet, London

November 3, II, No. 4914

11 *Use of Nitrous Oxid and Oxygen with Rebreathing in Military Surgery. H. E. G. Boyle.—p. 667.
12 Circulatory Inefficiency, with Special Reference to Nervous Factor. E. B. Gunson.—p. 670.
13 Presence of Spirochete in Urine in Cases of Trench Fever. A. T. Nankivell and C. E. Sundell.—p. 672.
14 *Operation for Repair of Crucial Ligaments. E. W. H. Groves.—p. 674.
15 *Treatment of Series of Recently Inflicted War Wounds with Proflavine. L. Colledge and others.—p. 676.
16 Rations in Relation to Disease in Mesopotamia. W. H. Willcox.—p. 677.
17 *Influence of Hypnotic Suggestion on Inflammatory Conditions. J. A. Hadfield.—p. 678.
18 Case of Epilepsy Cured by Removal of Calcareous Intracranial Tumors. T. Thompson and A. J. Walton.—p. 679.

11. Nitrous Oxid and Oxygen with Rebreathing in Military Surgery.—This paper is an attempt to procure a more extended use of gas and oxygen with regulated rebreathing in major surgical procedures, and especially in the treatment of wounded. Boyle points out that this anesthetic is nontoxic, and therefore there is less strain put on to the patient, seeing that he does not have to eliminate the drug, be it ether or chloroform, from his system. Moreover, there is no shock after gas and oxygen. However, this combination of anesthetics is not one to place in the hands of the careless or inexpert—it requires skilful administration, and if used carelessly will inevitably lead to disasters. The method is unsuited when absolute relaxation is required all the time; in some abdominal cases, for instance, gallbladder operations. There have not been any fatalities among 711 cases.

14. Repair of Crucial Ligaments.—The principle of the operation devised by Groves consists in forming a new anterior crucial ligament from the iliotibial band and a new posterior ligament from the tendon of the semitendinosus. In each case the new ligament retains its upper attachment in the thigh and is threaded through new canals bored in the femur and tibia, and is sewn to the outer surface of the latter bone.

15. War Wounds Treated with Proflavine.—As tested by the authors in the treatment of a series of recent wounds, there appear to be no differences in the properties of the two substances acriflavine and proflavine.

17. Hypnotic Suggestion.—Hadfield cites a case of blisters on the skin caused by hypnotic suggestion.

National Medical Journal, Shanghai

September, III, No. 3

19 *Differential Leukocyte Count in Beriberi. J. W. H. Chun.—p. 113.
20 Isolation of Streptococci from Rabbits. E. T. H. Tsen.—p. 116.
21 Report of Research Committee of Chinese Medical Men's Association on Height, Weight and Chest Measurements of Healthy Chinese. G. D. Whyte.—p. 111.

19. Leukocytic Count in Beriberi.—Differential leukocytic counts in forty-two cases of clinically recognized beriberi seen at the Shantung Road Hospital, Shanghai, during the year 1912 were made by Chun. The differential count published by the author as being that of a normal Chinese is as follows: finely granular oxyphil, 58.0 per cent.; coarsely granular oxyphil, 5.7 per cent.; basophil leukocyte, 0.6 per cent.; hyalin, 9.8 per cent.; and lymphocyte, 25.3 per cent. The differential count obtained in forty-two cases of beriberi was as follows: finely granular oxyphil, 57.4 per cent.; coarsely granular oxyphil, 5.2 per cent.; basophil leukocyte, 0.4 per cent.; hyalin, 19.5 per cent., and lymphocyte, 17.2 per cent. It will be noted that the hyalin cells average as high as 19.5 per cent., whereas the normal figure among the this notably high percentage of the hyalin cells may serve Chinese ought to be 9.8 per cent. The author suggests that as a help toward the diagnosis of beriberi in difficult cases.

Practitioner, London

November, XCIX, No. 5

22 Occurrence of Cleft Palate. J. E. Frazer.—p. 401.
23 Auricular Fibrillation. F. W. Price.—p. 428.
24 Heart Failure and Administration of Digitalis. H. L. Flint.—p. 443.
25 Case of Unilateral Striae Atrophicae (Striae Cutis Distensae) of Thorax, and Case of Macular Atrophy (Maculae Atrophicae). F. P. Weber.—p. 453.
26 Recent Orthopedic Surgery. V. Moxey.—p. 462.
27 Irritative States of Erector Spinae as a Cause of High Blood Pressure. E. F. Cyriax.—p. 468.
28 Internal Secretions. T. B. Scott.—p. 474.
29 Probable Causes of Fatalities at Tonsil Adenoid Operation. J. D. Mortimer.—p. 482.
30 Spirochetal Dysentery and Postspirochetal Paralysis During Epidemic of Relapsing Fever. K. Yacoub.—p. 487.

Bulletin de l'Académie de Médecine, Paris

October 16, LXXVIII, No. 40, pp. 395-434

31 The Declining Birth Rate. C. Richet, P. Bar and others.—p. 396. Continuation.
32 The Bread Card. E. Maurel.—p. 419.
33 Classification of Antiseptics. C. Richet and H. Cardot.—p. 425.
34 Intramuscular Injections in Treatment of Gonorrheal Sepsis. S. Mélamet.—p. 428.
35 Rupture of the Spine; Reduction; Recovery. Joly and Noury.—p. 430.

Paris Médical

October 13, VII, No. 41, pp. 289-304

36 Pneumococcus Infections Simulating Typhoid or Influenza. S. I. de Jong and G. Magne.—p. 289.
37 *Radiotherapy of Tuberculous Peritonitis. E. Albert-Weil.—p. 292.
38 Intoxication from Emetin. C. Mattei.—p. 295.
39 Eruption from Handling Powder from Unexploded German Shells. G. Milian.—p. 299.
40 Nervous Lesions after War Wounds of the Head. H. Gougerot.—p. 301.

37. Roentgenotherapy of Tuberculous Peritonitis.—Weil remarks that of all the various methods of treating tuberculous peritonitis that have been applied to date, systematic utilization of sunlight and sea air seem to have the most testimony in their favor. But both require the suitable environment which is within the reach of comparatively few. On the other hand, with the roentgen rays we can apply the chemical rays anywhere, even to outpatients. He has been applying roentgenotherapy systematically since 1914, using large doses of very penetrating rays, filtered. Some of the children had the fibrous form of peritonitis and some the form with ascites. In every case in which there was not already generalization of the disease in the lungs or pronounced cachexia, a complete cure was rapidly realized, with complete restoration of the general health. He uses a Coolidge tube, a 5 mm. aluminum filter, a 20 cm. spark, and a 1.5 or 2 milliampere current. The exposures are repeated about monthly, but he reduces the strength a little each time to ward off skin trouble. This technic does not entail radiodermatitis nor generalization of the tuberculosis. After the first series there may be a recrudescence of the fever and persisting malaise, but this reaction was never serious in his experience, and he never allowed it to interfere with his giving the effectual dose of 12 or 14 H units in the course of four successive days on the four quarters of the abdomen. In case of much debility the series can be fractioned to spread out over ten or twelve days.

Presse Médicale, Paris

September 27, XXV, No. 54, pp. 561-568

41 *Ankylosis of the Ankle-Joint. Ducroquet.—p. 561.
42 Rabies in Man; Three Cases. H. G. de Cardenal, Legrand and Benoit.—p. 564.
43 White Patches on the Nail. (Les ongles marbrés.) R. Sabouraud.—p. 566.

October 4, No. 55, pp. 569-576

44 *Test Tachycardia after Exertion. C. Aubertin.—p. 569.
45 *Improvised Mask for Anesthetics. M. Savariaud.—p. 571.
46 Traumatic Deadening of Peripheral Nerves. P. Descouts.—p. 572.
47 Present Status of Treatment of Gonorrhea in the Male. P. Chevallier.—p. 573.

41. **To Overcome Effect of Stiff Ankle.**—Ducroquet gives serial views showing the mechanical principles involved in the disturbance with ankylosis of the ankle joint. It can be corrected in large measure by wearing a heel that brings the foot and leg into an angle of 70 degrees instead of the right angle with the naked foot. The knee and body must be bent to correspond, but this is not enough to attract attention.

44. **Test Tachycardia.**—Aubertin regards as extremely instructive the varying degrees of shortness of breath and acceleration of the heart beat induced by a given muscular exercise and by the change from a reclining to an erect position. The pulse is counted reclining, and again standing. After the exercise, it is counted standing still and reclining again, allowing a given interval between the counts. A number of tracings are given for comparison.

45. **Improvised Mask.**—Savariaud fits a bag of rubber cloth of the mackintosh type loosely over the patient's face. It is held in place by an elastic band, of garter elastic, passing under the chin and over the top of the head. The cloth piece is 50 by 70 cm. in size, and is doubled over and the edges sewed together to make a bag 35 cm. deep. A hole large enough to admit the tip of the finger is made to the right of the nostrils with a counter opening on the other side. The pressure from the elastic band on the suprahyoid region prevents the tongue from dropping back into the throat. The ears show beyond the elastic band, and as long as they are pink and the patient is breathing regularly, all is well.

Progrès Médical, Paris

October 6, XXXII, No. 40, pp. 331-338

48 Shell Shock. H. Damaye.—p. 332.
49 Galyl, a French Substitute for Salvarsan. P. Richard.—p. 334.
50 Standardization of Exercise Tests. B. du Coteau.—p. 337.

October 13, No. 41, pp. 339-346

51 Physostigmin Slows the Pulse Rate. A. Mougeot.—p. 339.
52 Camphor and Sesame Oil in Dermatology. L. Bory.—p. 341.
53 Frame to Aid in Applying Plaster Bandages. H. P. Achard.—p. 342.

Revue de Médecine, Paris

XXXV, No. 3, pp. 133-205

54 *Forms of Epidemic Meningitis with Purpura. A. Netter.—p. 133.
55 *Inflammation of Nerve Roots. (Radiculite cervico-brachiale.) A. Leri.—p. 151.
56 *Acute Insufficiency of Liver and Kidneys. P. Merklen.—p. 172.
57 Scapulohumeral Myopathy in Man of Thirty-One. A. Courjon and J. Chalier.—p. 197.

No. 4, pp. 209-278

58 Can Acute Appendicitis be a Form of Tuberculosis? L. Landouzy.—p. 214.
59 *Influence of Hemorrhages on Glycemia. R. Lépine.—p. 230.
60 The Inorganic Nervous Affections after War Wounds Are the Same as the Hysterotraumatisms of Peace. J. Ferrand.—p. 239. To be continued.

54. **Epidemic Meningitis with Purpura.**—Netter remarks that the peculiar gravity of epidemic meningitis with purpura calls for early intraspinal treatment with a polyvalent serum made from as many strains of meningococci as possible. By this means the mortality in France has been kept down to 24 per cent. while British statistics show a mortality of 60 per cent. The purpura may precede the meningitis, and may even develop without meningeal symptoms at any time. The purpura indicates the generalization of the infection, as the meningococcus is found in the skin lesions and in the blood, and there may be involvement of the joints or myocardium, or iridocyclitis.

55. **Irritation of Spinal Nerve Roots.**—Leri reports in detail [illegible]ur cases in which the pains and loss of cutaneous sensibility [illegible]tched along the neck, shoulder and arm, corresponding [illegible]vation from the cervicobrachial spinal nerve roots. [illegible] by [illegible] in the region were also attenuated or lost [illegible] ere was paralysis later, with atrophy of the [illegible]t on the brachial plexus. Syphilis could not [illegible]use [illegible]d there was nothing to suggest tuberculosis [illegible] ge[illegible] four men, but the trouble had commenced with pains in the spine suggesting rheumatism. Leri discovered tender points in the region of the sacrolumbar roots in eighteen or twenty-four cases of ordinary sciatica; in thirteen there was decided lymphocytosis in the cerebrospinal fluid.

56. **Acute Liver-Kidney Insufficiency.**—Merklen gives the details of fifteen cases in which symptoms indicated that the liver and kidneys had suddenly stopped working properly on account of some toxic-infectious influence. In nine cases the disturbances proved rapidly fatal, but in the others the jaundice and uremic symptoms with oliguria and even anuria yielded when copious diuresis was realized, and the men recovered. The condition was much graver to start with than in other forms of infectious jaundice, and estimation of the urea content is the guide to the prognosis. The one thing in treatment is to get the kidneys to working extra freely and keep this up.

59. **Influence of Hemorrhages on Glycemia.**—Lépine relates that a loss of blood corresponding to 1 per cent. of the weight of the animal is almost always followed by hyperglycemia in the healthy animal. Repeated losses of blood may exhaust beyond chance of this recuperating reaction.

Correspondenz-Blatt für Schweizer Aerzte, Basel

October 13, XLVII, No. 41, pp. 1361-1392

61 Reconstruction of the Jaws after War Wounds. (Chirurgisch-zahnärztliche Kieferbehandlung.) H. Matti.—p. 1361. Egger.—p. 1365.
62 *Tumors of the Knee Joint Capsule. J. Züllig.—p. 1368.

62. *Tumors of Knee Capsule.*—Züllig reports a case of giant-cell xanthosarcoma, growing from the synovial membrane of the knee, with a clinically mild course. The patient was a woman of 34 who for ten years had had occasional pains in the right knee with intermissions up to four years. For the last year there had been an effusion at times. It subsided under bed rest and moist heat. The movements of the joint were free, but a movable tumor could be felt close to the patellar ligament. Roentgenoscopy showed the bones normal in the joint but the operation revealed three small tumors in a group and a small fibrous growth, all starting in the synovialis and easily removed. About six months later a fat tissue tumor was removed from the fat tissue around the joint. Histologic examination showed that the first tumors were of the xanthosarcoma type. The patient has had no further disturbance from the knee during the year since. Aside from cases of lipomas, Züllig was able to find only seventeen cases of a tumor of a joint capsule on record. In the eleven sarcoma cases all but three were women. In eight cases the entire capsule was infiltrated with the chondromatous or sarcomatous tissue. In only five of the sarcoma cases was there an isolated tumor. The course was from one to two years except in his case, but in all it was emphasized that there had been no trauma of the knee. The age of the patients ranged from 18 to 39. In one case of small-cell, round-cell sarcoma repeated recurrences required operative measures, and finally the leg was amputated. A myeloid sarcoma in one case has shown no signs of recurrence during the eight years to date. Differential diagnosis is usually by exclusion, the absence of trauma and of pathologic roentgen findings excluding meniscus injury, loose bodies, etc. With round-cell sarcoma, circumscribed excision is not radical enough, but with myeloid and giant-cell sarcomas this seems to be enough under expectant supervision, with repeated roentgen control. Diffuse sarcomatosis and tuberculosis have much in common, but with tumor the use of the knee may be more restricted while, on the other hand, there is not the extreme atrophy of muscles as with tuberculosis. There is little or no pain with sarcomatosis, and no friction sounds as the joint surfaces are intact, and no abscess and fistula production as is liable with a tuberculous knee. Analogous tumors in tendon sheaths are benign; in Spiess' four cases the interval before operation was one, five, twelve and twenty-two years.

Gazzetta degli Ospedali e delle Cliniche, Milan

October 7, XXXVIII, No. 80, pp. 1073-1088

63 *Technic for Exclusion of Pylorus. A. Franchini.—p. 1075.

63. **Exclusion of Pylorus with Strip of Rubber Sponge Tissue.**—Franchini reviews the various technics for exclusion of the pylorus, and expatiates on the superior advantages of a strip of rubber sponge tissue for ligating the pylorus. He uses a strip 16 or 18 mm. wide and 5 or 6 mm. thick, the ends flaring a little to aid in suturing them firm.

Policlinico, Rome

October 14, XXIV, No. 42, pp. 1257-1280

64 *Capillary Drainage for Extensive Wounds. C. Canestro.—p. 1257.
65 Physical Measures in Treatment of Wounds. M. Serena.—p. 1265.
66 *Pernicious Malaria Simulating Tetanus. A. Majoli and F. Paoletti.—p. 1269.

September, Surgical Section No. 9, pp. 353-392

67 *Malignant Papilloma of Maxillary Sinus. G. Bilancioni.—p. 353.
68 Malignant Edema without Gas Production. I. Scalone.—p. 374. To be continued.
69 *Technic for Amputations. G. Lerda.—p. 378. Commenced in No. 7, p. 310.
70 *Tumors of the Mesentery. P. Gilberti.—p. 386.

64. **Capillary Drainage of Wounds.**—Canestro keeps up a constant irrigation of the wound by means of three or more strands of wicking brought down from the irrigator and, after passing through the wound, brought down into a jar below the plane of the wound. This ensures continuous capillary irrigation and drainage. If neutral solution of chlorinated soda is used as the irrigating fluid, the secretions in the wound become thoroughly evacuated by this capillary drainage after a certain time, while the simplicity and ease of this technic commend it. A pad of nonabsorbent cotton is laid over the wound, the skin around protected with gauze impregnated with petrolatum. The nurse can see at a glance by the aspect of the efferent wicks that each is working properly. If the wicking is too short to run the entire distance, the wicking entering the wound and that fitted in its depths and conveying away the secretions can be separate pieces.

66. **Pernicious Malaria Simulating Tetanus.**—The case described emphasizes anew that in a malarial district, whatever the symptoms, the possibility of their being the work of malarial infection alone should never be forgotten.

67. **Malignant Nasal Papilloma.**—The malignant growth involved the right maxillary sinus and half of the nose of a man of 42, and there was recurrence in the lacrimal sac after its apparently successful removal. In another case in a woman of 56 the cancer involved all the right nasal cavities including the lacrimal sac. The microscopic findings are compared with similar cases on record.

69. **Technic for Amputations.**—Lerda here concludes his long study of the indications for different technics with various traumatic lesions with an appeal to save every possible scrap of skin, muscles and tendons. The geometric or esthetic aspect of the stump should be absolutely disregarded, and every effort made to maintain intact and vital all parts of the limb that permit this, when operating close to the firing line. The reduced resisting powers of the tissues and the omnipresent infection impose the necessity for the simplest technic, without attempting to suture. Cinematic amputations, such as Vanghetti has been preaching for twenty years, seeking to utilize the power still left in the stumps of the muscles, forming loops out of them, should be reserved till later. Even with a favorable environment for this complicated surgical work, it is often hampered by the difficulty of finding muscles and tendons long enough to make the loops and cross loops necessary for the purpose, and enough skin to line the tunneled loops.

70. **Ileus from Mesenteric Fibroma.**—Gilberti traces the history of mesenteric cysts back to 1507, but Morgagni in 1760 was the first to report obstruction of the intestine by a mesenteric cyst. In a personal case described, the pure fibroma had not caused any appreciable symptoms until suddenly obstruction of the intestines produced a severe set of disturbances. Probably some unusual accumulation of feces or gas had combined with the movable tumor to occlude the passage. There was no suspicion of the exact cause of the ileus until the operation revealed the mesenteric site of the tumor. The latter had been discovered several months before, immediately after an abdominal contusion.

Riforma Medica, Naples

September 22, XXXIII, No. 38, pp. 913-932

71 Mixed Intravenous Vaccination against the Typhoid Group. G. Quarelli.—p. 913.
72 Regeneration of External Popliteal Nerve after War Wound. C. Ceni and V. Desogus.—p. 915.
73 *Unintentional Muscular Movements and Contractures after War Wounds. S. Ricca.—p. 918.
74 Etiology of Sprue. (Psilosi.) G. A. Moscati.—p. 922.

October 6, No. 40, pp. 953-972

75 Five-Day Fever in Italian Soldiers. P. Sisto.—p. 953.
76 Present Status of Treatment of War Wounds of Peripheral Nerves. G. Moscati.—p. 959.

73. **Parakinesia after War Wounds.**—Ricca applies this term to deviation from normal of the volitional motor functioning of certain groups of muscles after healing of a war wound. He cites a number of examples of these unintentional by-movements, and emphasizes the importance of breaking up these bad habits as soon as they show themselves. Once well established, the parakinesia may prove quite rebellious. Treatment is by training, with the usual measures for overcoming a tendency to tics of any kind.

Tumori, Rome

June-September, V, No. 3, pp. 229-356

77 *Experiences with Rat Sarcomas. G. Serafini.—p. 229.
78 *Preceding Injury of Tissues as a Factor in Development of Experimental Tumors. G. Fichera.—p. 258.
79 *Bone Metastasis of Hypernephroma. G. D'Agata.—p. 272.
80 *The Anatomic Findings and Outcome after Resection of the Stomach. G. Fichera.—p. 305. Continuation.

77. **Rat Sarcomas.**—Serafini relates that in resecting part of the spleen in a patient with malignant disease of the spleen, he was obliged to resect the splenic artery. Two years have passed to date without a sign of recurrence. This suggested that possibly the shutting off of the splenic vessels was responsible for the unexpectedly favorable outcome. But a long series of experiments on rats refuted this assumption, these rats dying rather sooner than the controls. Other factors must have been responsible in the clinical case mentioned. Further experiences on rats immunized with repeated small injections of spleen tissue or sterilized sarcoma tissue, either promoted the growth of the malignant tumor or had no effect. Injection into the tumors of an emulsion of lecithin seemed to sensitize the growths to the action of the roentgen rays. The sarcomas also showed a moderate inhibition of growth after treatment with rat serum that had been exposed in vitro to the action of the radium rays. But fragments of sarcoma exposed to radium seemed to give prompter and larger growths when the rats were inoculated with them than when the scraps had been exposed to roentgen rays. Inoculation of sarcoma tissue directly into the knee never induced a sarcoma at this point.

78. **Preceding Injury of Tissues as Factor in Development of Experimental Tumors.**—Fichera protests against the conclusions drawn by Pentimalli from a series of negative experiences in this line.

79. **Metastasis of Hypernephroma.**—D'Agata's patient was a man of 56 who six months before had noticed a bunch in the parietal bone. Indolent at first, during the last month it had increased in size until it was as large as a hen's egg. The tumor excised was of the suprarenal type of tissue, and D'Agata reviews the literature on the subject of hypernephromas and their metastasis in bones. This latter usually occurs between the ages of 40 and 60; only one case is cited in a younger woman. It has usually been diagnosed as a tuberculous affection until the microscope revealed its true character. The discovery of multiple tumors in an adult should always suggest the possibility of metastasis from hypernephroma; Albrecht advises a lumbar exploratory operation on this basis alone. The bone metastasis may precede clinical manifestations of the primary tumor, as in the case reported. D'Agata not only advises extirpation of the metastasis but insists that the primary tumor should be sought and removed and its site given roentgen exposures. Removal of the bone metastasis alone does not seem to have improved the prognosis in any of the cases on record, the primary tumor continuing its malignant course unmodified.

80. **Resection of the Stomach.**—In this instalment of his monograph, Fichera gives the operative findings and the outcome years later in six cases of gastric ulcer and forty-nine of gastric cancer.

Brazil-Medico, Rio de Janeiro

September 15, XXXI, No. 37, pp. 313-320

81 *Mycosis of the Lungs from the Brazilian Oidium. IV. O. Magalhães.—p. 313.
82 Orthopedic Treatment in Little's Disease. A. F. de Magalhães.—p. 316. Commenced in No. 36, p. 306.

September 22, No. 38, pp. 321-328

83 Myxosporidium of Brazilian Fishes. A. M. da Cunha and O. da Fonseca.—p. 321.
84 Ancient and Modern Views of Syphilis. D. Speroni.—p. 325.

September 29, No. 39, pp. 329-336

85 *Spirochete of Hemorrhagic Jaundice in Rats at Rio. H. de B. Aragão.—p. 329.
86 *Suppuration in the Urinary Apparatus of Infants. N. Gurgel.—p. 330. Commenced in No. 38, p. 321.

81. **Pulmonary Mycosis.**—Magalhães relates that a young man developed mycosis of the lungs, fatal in a little over thirty days, and he knows of three other cases with a similar acute course. In some of the chronic cases he has encountered, the affection flared up into an acute phase, promptly fatal in more than one case. Left untreated, this pulmonary oidiosis is always fatal. The temperature curve is characteristically irregular, and there are signs of softening and breaking down of the parenchyma in the lung. Treatment with potassium iodid is decisive. The septicemia is alike in man and animals. The rabbit is as susceptible to inoculation with the oidium as the guinea-pig to tuberculosis. In macacus monkeys the oidium penetrated the intact mucosa of the mouth and nose.

85. **Spirochete in Rio Rats.**—Aragão reports finding in rats at Rio de Janeiro the spirochete described by Inada and Ito as the *Spirochaeta icterohemorrhagiae*, by the Germans as the nodose spirochete, and by Noguchi as the *Leptospira icterohemorrhagiae*. Kidney tissue from the rats was injected into six guinea-pigs, and one died the tenth day with intense jaundice and hemorrhagic foci in lungs and stomach, epistaxis and edema. Emulsions of liver and blood from this guinea-pig reproduced the same disease when inoculated into six others. Clinical cases of infectious jaundice have been described recently in northern Brazil, but the source of the infection could not be discovered in suspected human beings. The discovery of the spirochete in rats at Rio throws more light on the subject.

86. **Suppuration in Infant's Urinary Apparatus.**—Gurgel remarks that the infant's yellowish pallor and restlessness are the first symptoms that call the parent's attention to the trouble. The mucous membranes are blanched, and the child has no desire to eat. With fever in an infant the ear and the urine should be examined at once, but in practice very few take the trouble to examine the urine. He declares it is as important for the infant as for the adult. If not obtainable otherwise, he draws some urine with a catheter. In about 40 per cent. of the cases of fever in infants for which no cause is manifest, pyelitis is responsible, and in about 95 or 98 per cent. of the nontuberculous cases the colon bacillus is found. In the majority of cases the infection of bladder or kidneys has spread from the bowels, possibly by way of the lymphatics. In his experience there was usually a preceding influenza, measles or tonsillitis, and, in one case, paratyphoid infection; in all there was a history of intestinal upset. The pyelitis or pyocystitis generally develops insidiously and runs a protracted course. Left untreated, serious damage may result while the course is benign when the pyuria is discovered early and treatment applied at once. He has obtained excellent results in treatment of pyelitis in infants with methylene blue alone, injecting it into the rectum in a 1, 2 or 3 per thousand solution, twice a day. It generally is eliminated in from thirty to ninety minutes. In three or four days the fever drops and the pus disappears from the urine. The child cannot be deemed cured until repeated examination at varying intervals confirms the absence of pus from the urine. He reports eight cases in detail. In some cases, salol also was given, but the results were equally good with the methylene blue alone. In another case the *Bacillus lactis-aerogenes* was cultivated from the urine, and it induced in guinea-pigs congestion of the intestines and hemorrhages in the omentum.

Semana Medica, Buenos Aires

August 30, XXIV, No. 35, pp. 247-270

87 Edematous or Hydremic Form of Disturbance from Too Exclusive Carbohydrate Feeding of Infants. M. Acuña.—p. 247.
88 Treatment of Ankylosis. E. M. Olivieri.—p. 253. Continuation.
89 The Public Hospitals, Asylums, etc. of Buenos Aires. E. R. Coni.—p. 259. Continuation.
90 Vaccine Therapy of Gonorrheal Conjunctivitis in Adults. J. C. Mira.—p. 264.

September 6, No. 36, pp. 271-302

91 *Plantar Tibialis Anticus Reflex. J. M. Obarrio.—p. 273.
92 The State Colony for the Feebleminded. A. Chueco.—p. 274.
93 Present Status of Treatment of Typhoid. P. V. Cernadas.—p. 279.
94 The Fight against Tuberculosis in Argentina. E. R. Coni.—p. 288.

91. **Plantar Tibialis Reflex.**—Obarrio gives an illustration showing the dorsal flexion, adduction and inward rotation of the foot when the plantar reflex was elicited in a woman with spastic paralysis, negative Babinski, Gordon, Schaffer and Oppenheim signs, while the Strümpell was positive. The muscle showing the reflex action was the tibialis anticus. He has encountered it also in other cases of organic lesions with negative Babinski.

Siglo Medico, Madrid

September 29, LXIV, No. 3329, pp. 725-744

95 Further Research on the Blood with Vital Staining. F. Mas y Magro.—p. 726.
96 Technic for Salvarsanized and Mercurialized Serum in Intraspinal Injections. F. Escudé.—p. 730.
97 Medical Precepts and Prejudices on Diet Questions. S. Baglioni.—p. 734. To be continued.

October 6, No. 3330, pp. 745-764

98 Lesions in Joint Ligaments. S. G. Hurtado.—p. 749.
99 Diet Questions. S. Baglioni.—p. 753. Continuation.
100 Psoriasis. Sicilia.—p. 755.

October 13, No. 3331, pp. 765-784

101 Typhus at Madrid in 1916. G. Marañon.—p. 766.
102 *Suction Extraction of Cataract. J. A. and I. Barraquer (Barcelona).—p. 768. Commenced in No. 3330, p. 746.
103 Means to Reduce Infant Mortality. B. H. Briz.—p. 771.
104 Paroxysmal Tachycardia with Hydatidiform Mole. P. L. Marcos.—p. 773.

102. **Suction Extraction of Cataract.**—Barraquer's success in extracting cataract in the capsule by vacuum suction has been mentioned in The Journal (June 9, 1917, p. 1789). He here gives a historical review of cataract operations, with illustrations showing the Daviel and Smith technics and his own method. The latter does not require any pressure but merely draws the lens out in toto by vacuum suction through a shallow cup applied to the lens. He also gives illustrations of different apparatus for inducing the vacuum by electricity or a water jet pump. The cataract extractor itself projects from a syringe-like instrument held in the hand like a pen, the thumb controling a valve that shuts off the suction at will. He dilates the pupil with cocain and epinephrin an hour beforehand. This permits the use of eserin, and hernia of the iris is warded off.

Gann, Tokyo

October, XI, No. 3. German and English Department, pp. 27-46

105 *Gastric Tumors in Rabbits Fed with Wool-Fat. Y. Kon.—p. 27.
106 *Hen Sarcoma. T. Ogata and M. Ishibashi.—p. 32.
107 Sarcoma in Mouse Thymus. K. Ichikawa.—p. 34.
108 Fate of Tumor Cells in Blood Stream. M. Takeuchi.—p. 36.
109 *Tumor of Horse Testicle. T. Kimura.—p. 38.

105. **Abnormal Proliferation of Gastric Mucosa after Feeding with Wool-Fat.**—Kon fed rabbits and rats for six months or more with adeps lanae hydrosus, the rabbits taking a daily total of from 5 to 10 gm. with their vegetables. In 50 per cent. nodules developed and adenomatous-proliferation in the pylorus region where the lipoid had accumulated. The range of proliferation was wide, one rabbit presenting an enormous adenoma while another under the same conditions had only a minute lump, but in this rabbit there was a tubular adenoma in the liver with considerable lipoidosis. The tongue, gums and lips also displayed a similar tendency to papillomatous proliferation, and there was also in some a tendency to

deposits of lipoid in the skin and falling of the hair. Two plates accompany the article.

106. **Chicken Sarcoma.**—Ogata and Ishibashi report that they injected subcutaneously in sixty-eight young hens blood serum from hens with one of the three types of sarcoma (the Fujinami, Hayashi and Rous strains). One of the hens injected developed a tumor. It was of the Rous' chondrosarcoma strain. The possibility of thus inducing a secondary tumor seems to be established, thus confirming Busch's similar experience in this line, published in 1914. They warn, however, that as we know of the possibility of blood-borne metastasis, a similar mechanism might explain the secondary tumor growth in this exceptional case. They call attention further to the adsorbing power of kaolin and animal charcoal in respect to tumor virus. When added to a well diluted emulsion of tumor tissue and the whole vigorously shaken up, and then filtered or centrifuged, the filtrate or supernatant fluid never induced tumor growth when injected subcutaneously into hens. On the other hand, the sediment and filter residue proved extremely virulent when injected. By this simple means we have it within our power to materially enrich the tumor-producing substance contained in serum or other fluid mediums.

109. **Testicle Tumors in the Horse.**—Kimura states that veterinarians found 142 tumors of various kinds among 77,224 horses killed in Japan during the last eight years; fifteen in 241,187 cattle, and three in 477,772 hogs. In the horses there were nine cases of tumor in the lung, malignant in all but one; four in the stomach; one in the uterus; forty-nine in the testicles; eight in the kidney; fifty-three instances of melanoma, and fourteen of sarcoma, seat unknown. The various data are tabulated and compared with similar data from European literature. He gives plates showing the microscopic findings in twelve cases of orchidoma or orchidoblastoma in horses—all of the epithelioma type. There were signs of metastasis in six. The horses affected were mostly stallions, 15 years old or over.

Russkiy Vrach, Petrograd

XVI, No. 18-20, pp. 385-408

110 *Acute Edema of the Lungs. N. A. Kruglevsky.—p. 385.
111 *Treatment of Poisoning from Asphyxiating Gases. V. N. Boldireff. —p. 390.
112 *Behavior of the Vegetative Nervous System during Poisoning from Asphyxiating Gases. N. I. Leporsky.—p. 391.
113 *The Nervous Manifestations with Poisoning from Asphyxiating Gases. M. N. Neiding.—p. 397.
114 *The Nervous and Psychic Condition with Poisoning from Asphyxiating Gases. M. Y. Sereisky.—p. 401.
115 *Intravenous Injections of Oxygen in Treatment of Poisoning from Asphyxiating Gases. K. F. Gakh.—p. 403.

110. **Mechanism of Acute Edema of the Lungs from Poisoning with Asphyxiating Gases.**—Kruglevsky analyzes the literature on the subject of acute edema of the lungs, citing in particular the views of Yandell Henderson and Martin Fischer on the mechanism of its origin. The old assumption of capillary pressure, as explaining acute edema of the lungs, failed to take into account the conditions of the natural pulmonary circulation, and hence experimental research in this line was based on inadequate premises. Further light has been thrown on the subject by the sudden poisoning from war drift gases as he explains in detail. Edema of the lungs occurs so rapidly that it reaches its height before inflammation has had a chance to develop.

111. **Treatment of Poisoning from Asphyxiating Gases in War.**—Boldireff urges among other points in treatment that the clothing of the gassed men should all be removed and fresh put on at once, changing even the shoes, as they all hold gas. In moving and in transportation of the gassed men, extreme care is imperative to keep them from jolting and from impure air. Absolute bed rest is imperative, not even allowing them to sit up, for three or five days at least. Talking and smoking should be prohibited, and no smoking should be allowed in their vicinity. As so much of the lungs has been damaged by the gas, the air the men breathe must be uncontaminated. The gassed are peculiarly sensitive to cold, and they must be kept warm and well covered. Fluids must be supplied to the body freely by various means to dilute the over concentrated blood. Revulsion to the chest, dry or wet cupping or mustard pastes are indispensable, especially when there are signs of incipient edema of the lungs. General venesection is not recommended, and there must be no rubbing of the patient to warm him, as this is liable to induce embolism. Among the tonics found useful have been subcutaneous injections of ether, camphor or atropin, and a few drops of anisated solution of ammonia by the mouth. Strophanthin seems the best heart tonic when one is directly indicated, as this drug acts quickly and does not constrict the vessels. In sectors especially exposed to drift gas attacks, ample supplies of extra clothing, gas masks, and everything needed to combat the gases should be kept on hand, not only for the troops but for the civilian population in the gassed region. Last year, he adds, many children were killed by the asphyxiating drift gases. He warns in conclusion that it is often difficult to differentiate poisoning from this source when the circumstances are not known, and he urges close study of the cases for further differential points.

112. **Behavior of the Vegetative Nervous System in the Gassed.**—Leporsky records the reaction to atropin of forty gassed soldiers, and further the reaction to epinephrin and to pilocarpin. The findings with each are tabulated and compared. The responses in the majority indicated vagotony to a greater or less degree. In some cases, however, there seemed to be dissociation; some parts of the vegetative nervous system showed increased and other parts lowered tonus. The asphyxia from the gas poisoning evidently starts the centers in the oblongata to extra functioning, and this in turn deranges the functioning of the glands with internal secretions.

113. **Nervous Manifestations in the Gassed.**—Neiding states that in his 274 cases of poisoning from drift gases there were ninety-six men who showed no symptoms on the part of the nervous system and forty-six with only one, but in 132 there were indications of pronounced involvement of the nervous system, loss or modification of the reflexes and analgesia. Some of the others showed dermographism, irregular and rapid pulse or respiration, or other signs of nervous disorder, as with a traumatic neurosis. Over 50 per cent. of the 274 men thus presented objective nervous manifestations. Some are evidently traceable to direct anatomic injury of nerve tissue from chemicals in the gases.

114. **The Nervous-Psychic Condition in the Gassed.**—Sereisky reviews sixty cases of poisoning from gas attacks, and discusses in particular the nervous and mental condition of seven reaching his service six or eight weeks later. The symptoms indicate, he reiterates, that the gases contain some substance or substances which have a direct toxic action on nerve tissue. Inherited nervous taints render the nerve tissue peculiarly susceptible to the action of this toxic substance.

115. **Oxygen Intravenously in Treatment of Poisoning from Asphyxiating Gases.**—Gakh has only two cases to report in this preliminary communication, but he affirms that the success was striking in both, although as the patients were moribund at the time the benefit was only transient. The symptoms of the gassed show that the organism is perishing for lack of oxygen which the lungs are unable to take up from the air. The experiences with artificial pneumothorax show that a gas can be introduced into the body in large amounts without danger. Gakh's tests seem to demonstrate that oxygen introduced cautiously into a vein is absorbed so rapidly that embolism need not be feared. He injected it with the technic as for artificial pneumothorax, using a morphin needle to introduce the gas into the ulnar vein. All proceeded smoothly in the two cases described, as was anticipated from the theoretical and physiologic premises.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

September 8, II, No. 10, pp. 831-926

116 *Tests of Visual Acuity; the Separable Minimum. C. O. Roelofs. —p. 836.
117 *Peas in Treatment of Deficiency Diseases. D. J. H. Pol.—p. 850.
118 Tuberculosis in the Netherlands. C. A. Cammaert.—p. 856.
119 *Radiology in Gynecology. B. J. Kouwer.—p. 861.
120 Intradural and Extradural Tumor; Two Cases. H. W. Stenvers. —p. 863.

116. **The Separable Minimum in Testing Vision.**—Roelofs describes with a number of plates his research on the smallest space between two dots or lines that can be perceived by the eye. He discusses further how to estimate and record this separable minimum or Auslösungsvermögen, as Hering calls this limit of separate perception.

117. **Peas in Treatment of Deficiency Diseases.**—Holst in Norway found a few years ago that the Norwegian gray pea seemed to be effectual in curing ship beriberi. A trial of these peas (*capucijners*) in the Netherlands West Indies showed that they were effectual also in curing Asiatic beriberi, but Pol states that the action of katjang hidjoe, better known as the *Phaseolus radiatus,* of the bean family, is more powerful. These experiences confirmed the deficiency in vitamins as responsible for the symptoms in both these diseases, although the ship beriberi never develops in the acute form sometimes observed with the Asiatic type. With the former, edema gradually extending upward from the ankles is more common than paralysis, and proper food arrests the trouble at once. The European land type of beriberi usually runs a subacute course, and there is always paresis with or without slight edema. Pol reports in detail a case of this kind in a previously healthy man with three healthy children. He developed ascending paresis which gradually became actual paralysis within five or six months. Even the organ of speech was involved, so that speaking fatigued him; the arms and legs were quite paralyzed. By the sixth month the paralysis was apparently grave until the possibility of the trouble being a deficiency disease was suggested, and the diet was changed to include peas and phaseolus. As the supply of the latter soon gave out, the peas were the main reliance. They were given cooked and also in the form of a decoction, of 2 kg. boiled down to 1 liter, added to his usual food. No benefit was apparent for seventeen days, but then the paralysis began to subside, and in two weeks the paralysis of the legs had disappeared, the improvement continuing to progress in arms, hands and around the mouth in turn, the tongue being the last to return to normal. Fortunately, the long interval before improvement began had not discouraged either physician or patient. When improvement began it was rapid for a while and then subsided into a slow and gradual phase of improvement, corresponding to recuperation of the actually degenerated nerve cells. Traces of paresis were still evident by the eighth month, but there is every reason to suppose that complete recovery will follow in time. The man was a sergeant instructor of the fortress artillery and had to work in water part of the time.

119. **Roentgenotherapy in Gynecology.**—Kouwer warns that roentgenotherapy for fibroma of the uterus is still in the tentative stage. Opinions are still divided as to whether the fibroma itself or the ovaries should be exposed. He warns further that our assumption as to the two separate functions of the ovary—the production of the ovum and of the internal secretion—is still purely hypothetical. But we have reason to assume that roentgen exposures carried far enough are equivalent to castration, and we do not know the damage that may be wrought by the exposures even stopping considerably short of this. Instances have come to his knowlege in which roentgenotherapy has been applied to young women to relieve dysmenorrhea, and even women of 35 and 40 are not excluded from roentgenotherapy by those who fail to appreciate the power of the roentgen rays acting in this region. The gynecologists have not failed to warn of the dangers from operations, and the majority refrain on principle from operating for uterine fibroma unless very serious indications call for it. But, he adds, the roentgenologists are not equally frank in regard to dangers from roentgenotherapy. The medical literature in the Netherlands has no reports of injury of patients from roentgen treatment. He knows that such cases exist, but where are the reports of them? In referring to the Freiburg method of abrupt and very powerful application of the rays, he says that it is not difficult to learn from the very reports of their 1,395 cases sent out by the Freiburg clinic the harm done in this or that case. "How does it happen," he exclaims, "that Freiburg is deaf and blind to them? How can it be explained that, nevertheless, the statements of König and Gauss are accepted by many as absolute authority?"

Hospitalstidende, Copehagen

September 19, LX, No. 38, pp. 909-932

121 *Treatment of Diabetes Insipidus. A. Norgaard.—p. 909. Commenced in No. 37, p. 885.

121. **Treatment of Diabetes Insipidus.**—Norgaard discusses the present status of our knowledge in regard to diabetes insipidus, and the literature, and then devotes over thirty-two pages to the detailed description of a case as influenced by treatment of different kinds over long periods.

Hygiea, Stockholm

September 15, LXXIX, No. 17, pp. 865-912

122 *Experiences with Carrel Treatment of Suppurative Processes. K. Gramen.—p. 865.
123 Hydronephrosis with Old Blood Clots in the Cavities. K. Gramen. —p. 871.
124 *Thrombosis and Embolism of Mesenteric Vessels. J. A. Hedlund. —p. 875.
125 Fatigue Phenomena in Taste and Smell. E. L. Backman.—p. 886.
126 The Habitual Posture in Schoolchildren. P. Haglund.—p. 897.

122. **Carrel Treatment of the Suppurating Processes of Peace.**—Gramen applied the Carrel method first in a case in which the leg had been run over by a freight car. While waiting for the shock to subside to permit amputation, a trace of warmth was detected in the foot and conservative measures were applied, but in the course of six weeks the ulceration and necrosis had become so extensive that amputation seemed finally inevitable. The leg was then treated by the Carrel method, and in two days there was marked improvement and the lesions began to heal rapidly. The man is now walking with crutches, the leg 30 cm. shorter than its mate. In other cases of extensive suppurating processes, healing was more rapid and complete than under the ordinary measures. The method has been applied in several hundred cases at the Stockholm Hospital, and the general impression was equally favorable, but occasionally cases were encountered which did no better with this than with other methods. In thirteen cases of appendicitis, cholecystitis or salpingitis, a combination of the Carrel technic with the Mikulicz tampon gave excellent results, placing the Carrel drains inside the sack and tamponing around them. Warming the Dakin fluid to 37 C. seemed to reduce its strength about 0.007 per cent. per day. Patients with burns of the third degree complained of pain from the fluid. In one case of total streptococcus empyema, requiring rib resection, the collapsed lung showed no tendency to expand, but after secondary suture under Carrel treatment, healing proceeded by primary intention and the pneumothorax was gradually absorbed.

124. **Thrombosis and Embolism in Mesenteric Vessels.**—Hedlund has compiled about 373 cases of thrombosis and embolism of the mesenteric vessels, and reports two additional cases from his own experience, both fatal, in women of 40 and 59. The cases on record were nearly all in persons over 36; all but 38 per cent. were in men. In 6 per cent. both arteries and veins were involved; in 50 per cent. the arteries alone. Endocarditis and endarteritis are the usual causes, and some recent serious sickness, such as pneumonia, is common in the antecedents. The clinical picture may set in with bloody diarrhea or symptoms of ileus, with remittent attacks of pain, vomiting, sweats, violent localized peristalsis or paralytic ileus; collapse soon follows, with gangrene of the bowel and peritonitis. In one of his two personal cases there was gangrene from anemia, in the other hemorrhagic infarction, but the clinical picture in both was that of ileus. The course may be briefly fatal or it may drag along for months, the colic-like pain returning about thirty or sixty minutes after a meal, and lasting for from two to four hours, without localized peristalsis or stiffening of the bowel. In one of Hedlund's cases the trouble began with a chronic course, not flaring up into the acute phase until after about nine months.

Ugeskrift for Læger, Copenhagen

October 11, LXXIX, No. 41, pp. 1671-1714

127 Radical Treatment of Abortion in the Home. A. G. Lauritzen. —p. 1671.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. LXIX, No. 24 CHICAGO, ILLINOIS DECEMBER 15, 1917

THE CAUSATION AND CURABILITY OF CERTAIN LONG-STANDING ALBUMINURIAS *

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During the past few years a number of cases of albuminuria have come to my notice in which investigation showed the existence of a local focus, the removal of which led to the disappearance of the albuminuria. Thanks to the work of Billings and his school, we know the importance of foci of infection in the production of systemic disease. It is of interest to note that as early as 1802 Benjamin Rush pointed out in a letter the relation between systemic disease and caries and abscess of the teeth.

That severe local infections, such as ulcerative endocarditis, tonsillitis, and, indeed, most other acute infections, are capable of producing nephritis of the parenchymatous type, is of course a long-established fact. With this form of nephritis, which is an immediate result of the acute toxemia, I am not dealing. The type to which I desire to call attention is entirely devoid of acute features, and has all the earmarks of chronic renal disease. We know how futile is the attempt in the majority of such cases to remove the albumin from the urine by means of drugs or by diet.

These insidious albuminurias are often found in apparently healthy men who, in full confidence, apply for life insurance, only to be refused temporarily or permanently, because of the trace of albumin in the urine. Among adolescent subjects some cases have been classed as cyclic, orthostatic or postural albuminuria, a condition that as yet has no very satisfactory explanation. These cases are rather easily recognized. They give, as Barker and Smith[1] have shown, normal phenolsulphonephthalein outputs, and in other ways behave as cases of a nonprogressive type of renal irritation. Apparently the worst that can be said of them is that they bar the patient from life insurance.

While many cases of albuminuria of slight degree and springing from no obvious cause are due to early interstitial nephritis, there are some in which a careful search reveals a disease focus that stands in etiologic relation to the albuminuria. Let me illustrate this by a few examples:

CASE 1.—J. J. H., a boy, aged 9 years, came under my care because of poor and capricious appetite and general lack of vitality. He had been a difficult "feeding case" as an infant, but had not had any special diseases. From birth he was sensitive to protein, particularly egg protein, which caused hives, as his mother said, "almost before he swallowed it." Once he passed a little gravel. The tonsils and the cervical glands were enlarged, but the boy was not a mouth breather. There was also some enlargement of the spleen. The urine was very scanty, and for a year or more had contained a small amount of albumin and occasionally hyaline and granular casts. There was no edema. All manner of treatment was tried without producing any marked changes in the urine either in quantity or in quality.

Although the boy had never had a genuine attack of tonsillitis, I thought it best to have the tonsils removed, since they looked unhealthy. They were extirpated under ether, April 1, 1913, nearly two years after the discovery of the albuminuria. Both tonsils were found to contain cheesy masses, and in one there was an abscess. There was also a large adenoid. The second specimen of urine examined after the operation was free from albumin. Then, for a little while traces reappeared; but at the end of about six months both albumin and casts had entirely vanished. The appetite at present leaves nothing to be desired, and the lad is one of the finest and most agile of his age.

CASE 2.—A man, aged 42, a veterinary surgeon, came under my observation in 1913, stating that for years he had had pain in the right lower abdomen, which had sometimes been looked on as appendicitis, sometimes as renal colic. He had never passed blood or gravel, and only once—for about a week in 1911—he had passed pus. He had become more or less reconciled to the diagnosis, made by many medical examiners, of Bright's disease. The urine showed, when I examined it, just as it had done for many years, a small amount of albumin. Jan. 20, 1913, after the confirmative evidence of a roentgen-ray examination, a successful operation for the removal of a stone was performed by Dr. B. A. Thomas. The albumin disappeared quite promptly. When I last saw the patient, he seemed to be entirely well.

CASE 3.—A man, aged 21, a college student, was sent to me by Dr. W. P. Walker of South Bethlehem, because of albuminuria, which had been discovered during an examination for life insurance. Since 1909 the boy had had four sharp attacks of tonsillitis, notwithstanding the fact that he had had an operation for adenoids and enlarged tonsils in 1907. He had passed through measles, chickenpox and whooping cough in early life. The urine had a specific gravity of from 1.016 to 1.024, and contained albumin and sparse hyaline casts and occasional red blood cells. His blood pressure was 120 systolic and 80 diastolic; the weight was 109 pounds. The phenolsulphonephthalein test showed 53 per cent. in the first two hours and 15 per cent. in the third hour. The onset of elimination was somewhat delayed, requiring twenty minutes. The quantity of urine was about normal. While at Yale he was seen by Dr. Tileston, and on one occasion by Dr. Pratt of Boston. Both found the condition that I have described.

In June, 1914, the young man, with a number of other students, fell ill with sore throat, after eating in a certain restaurant. Feeling better at the end of twenty-four hours, he went to his home in Bethlehem, where he immediately had a relapse. The throat was intensely inflamed, and on the swollen tonsils there were discovered follicular spots, as well as areas of whitish exudate. The patient was extremely weak and prostrated, and had great difficulty in swallowing.

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* Read at the meeting of the Association of American Physicians, Atlantic City, May 3, 1917.

[1] Barker and Smith: Am. Jour. Med. Sc., 1916, 151, 44.

I saw him with Dr. Butler, and felt sure that he had streptococcic sore throat. After his recovery, which ensued without serious interruption, the tonsils, from which he had suffered so much during the preceding four or five years, were thoroughly extirpated. The albumin disappeared from the urine thereafter, and the last account I had from the young man was that he was perfectly well.

When, on one occasion, I discussed the subject of albuminuria due to focal conditions with Dr. B. A. Thomas, he told me that he could supply me with the histories of several striking cases. He has been kind enough to do so, and I copy one:

Case 4.—A man, aged 22, consulted Dr. J. C. Birdsall, Dr. Thomas' assistant, Feb. 15, 1915, because of albuminuria discovered, Jan. 1, 1914, during examination for life insurance. The urine showed a light cloud of albumin but no tube casts. Examination of the pharynx revealed diseased tonsils. A tonsillectomy was advised, which was done during the summer of 1915. October 9, the urine still showed a cloud of albumin. December 17, the patient suffered an attack of bronchitis. Sputum culture revealed the pneumococcus and the *Staphylococcus albus*. An autogenous bacterin was prepared, of which the patient received a number of injections. The urine was examined several times during the next two months, and on every occasion was found free of albumin.

Dr. Thomas also tells me that he has seen a number of instances of chronic albuminuria in syphilitic patients in whom the albuminuria entirely disappeared after antisyphilitic treatment.

The point that I desire to bring out is that cases of long-standing but otherwise mild albuminuria should not be looked on as incurable, unless evidence on the part of the cardiovascular system, or testimony given by functional tests, clearly demonstrates that the kidneys are diseased. This applies also to the so-called orthostatic or postural albuminurias of adolescents. The albuminuria may be kept up by disease of the tonsils (which is not always discoverable by simple inspection), by dental abscesses, by other infective foci, or by the presence of a stone. It may be made to disappear entirely, at least in some cases, by the removal of the offending focus. This gratifying result does not always set in immediately, but sometimes only after a number of months. The physician, therefore, should not be too soon discouraged. It is probable that kidneys which have been for a long time the seat of slight irritation will always be somewhat sensitive, whence it follows that patients cured of albuminuria should remain under medical observation for a number of years.

1715 Spruce Street.

Automobile Accidents in New York.—In a statement issued by State Commissioner of Health Herman M. Biggs an interesting and significant comparison is made between the number of deaths in the state caused by automobile accidents and typhoid fever, as well as other causes of death. While typhoid fever mortality was reduced 26 per cent. in 1917, the deaths from automobile accidents increased so much as to take the place of typhoid fever as one of the principal preventable causes of death. In September, 1917, there were 155 deaths from automobile accidents, more than the combined mortality from homicide and suicide, and undoubtedly a much greater number of injuries involving prolonged illness and more or less permanent disability. Of these deaths 55 were in New York City, 63 in upstate cities and 37 in rural districts. Typhoid fever caused 84 deaths among 796 patients during September. For the year 1917, up to September 30 there were 755 deaths from automobile accidents, while for typhoid fever there were 434 deaths among 2,840 patients.—*Bulletin* New York State Department of Health.

THE USE OF BISMUTH IODOFORM PASTE IN OUTPATIENT WORK *

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The treatment of postoperative hospital cases, as well as that of minor surgical conditions, comprises the general function of the routine work in the outpatient departments of our larger hospitals.

The chronically obstinate sinuses of osteomyelitis, tuberculosis, fecal fistula, empyema, lung abscess cavities and innumerable similar conditions present problems of no small importance to the outpatient surgeon who must receive the convalescent patient on his discharge from the hospital ward and take over the problem of promoting a rapid and complete recovery.

Another difficulty with which the outpatient surgeon has to deal is the indifference and the neglect of the patient to return regularly for treatment.

It was the hope of obtaining better results than with the means commonly employed that led us to use bismuth iodoform paste, first described and used by Rutherford Morison[1] in the treatment of war wounds at the Northumberland War Hospital, England.

In our work we have used two preparations of bismuth iodoform paste, the original paste and an emulsion.

The paste is prepared according to the formula of Morison. It is composed of bismuth subcarbonate or subnitrate, 1 part, iodoform, 2 parts, and liquid petrolatum, 1 part. We devised the emulsion because of the difficulty of introducing the paste into deeper cavities which necessitated drainage through a narrow sinus. This emulsion, which we have called "liquid bipp" (bismuth iodoform petrolatum paste), is composed of bismuth subcarbonate, 1 part, iodoform, 2 parts, and liquid petrolatum, 4 parts. Both preparations are easily and cheaply prepared.

Our treatment of highly infected wounds has been identical with that described in the British war hospital. The wound is first thoroughly irrigated with sterile saline, or 1:25 boric acid solution. It is then liberally swabbed out with 75 per cent. alcohol. The surrounding skin is shaved and cleansed in the same manner. The wound with all its cavities and pockets is tightly packed with bismuth iodoform paste and closed with the usual silkworm-gut or silk sutures.

The type of cases in which the foregoing has been employed has included only those in which we had previously allowed the wounds to heal by second intention or had drained them with rubber tissue. In the case of the majority of the patients treated with bismuth iodoform paste, the wound healed by first intention, with no resultant sinus, leaving a clear-cut insignificant scar. In highly infected cases, healing was effected by rapid granulation from the bottom.

In two patients with tuberculous cervical adenitis in which suppurating glands were removed from tissue that was thoroughly necrotic, curettage, swabbing with alcohol, and packing with bismuth iodoform paste were followed by complete closure. There was healing by first intention and recovery without sinus formation. We report this because in similar cases it had previously been our custom to employ drainage. The resultant sinus healed by second intention only after many days, and was complicated by excessive granulations.

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* From the Surgical Outpatient Department, Peter Bent Brigham Hospital.

[1] Morison, Rutherford: Lancet, London, 1916, 2, 268-272.

As to the relative value of bismuth iodoform paste and Beck's paste in the treatment of osteomyelitic sinuses, it is as yet too early to make an accurate or fair comparison. We have convinced ourselves, however, that the injection of the liquid bismuth iodoform mixture, accompanied by the maintenance of proper drainage, has thus far been more satisfactory than any of the older methods of treatment.

The results obtained in the postoperative treatment of a large number of empyema and lung abscess cavities have been extremely encouraging.

In these cases the sinus is completely filled with the liquid bismuth iodoform mixture by instillation with a large glass syringe through the rubber drainage tube. In this way the cavity and sinus are both completely filled with the emulsion, and the drainage tube remains in situ. It is not necessary for the patient to present himself for another dressing for from three to five days.

We have succeeded in obtaining a complete healing in four chronic cases which had obstinately resisted all other methods of treatment during a long period of time. More than half of the recently operated on patients that were given this treatment have progressed at a more rapid and satisfactory rate than prevailed under older methods of treatment.

A decided advantage of this paste is its nontoxicity even when it is used in large quantities. The possible dangers arising from the use of large amounts of iodoform and bismuth are iodoform poisoning and poisoning from lead which may be present in impure bismuth carbonate or subnitrate. Morison[2] asserts that in his entire series he has had only two patients in whom symptoms of poisoning by either of these drugs were severe enough to demand removal of the paste from the wound.

To prevent the introduction of lead into the wound, each batch of the bismuth salt is first tested for the presence of lead before it is incorporated into the paste.

Hepworth[3] reports five cases of poisoning occurring in the Wharncliffe War Hospital, Sheffield, in which symptoms suggesting plumbism were present. He describes a simple and yet delicate test for the presence of lead which we have used in our work with the greatest satisfaction.

We have been constantly on the watch for any symptoms of poisoning. Thus far we have had only one patient, with a large empyema cavity, in whom there was a blue line localized on the gums about the two canine and the two incisor teeth of the lower jaw. A piece of the bluish red gum was excised and studied microscopically and chemically. Chemical tests for both bismuth and lead were negative. Microscopically, the pigment was found in the layers of the rete. A definite decision as to whether the substance was lead or bismuth sulphite was not made. Since the patient had absolutely no untoward symptoms, the treatment was continued, careful observation being made at each visit. The red blood cells have shown no change, and the urine has not contained bismuth. The empyema cavity is healing rapidly from the bottom.

CONCLUSIONS

The advantages of bismuth iodoform paste lie in its marked germicidal action and stimulation of rapid tissue growth.

It is cheaply and easily prepared, is nontoxic, and requires no great skill in application.

An added feature in outpatient work is that less frequent dressings are necessary and therefore require a decreased number of visits per patient. This is often an economic saving of no small importance to the laboring patient.

The object of this article is to draw the attention of other outpatient departments to this preparation as a valuable addition in the treatment of similar cases in civil practice.

OPERATIVE RISK IN CARDIAC DISEASE *

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General impressions of operative risk in cardiac disease are scattered throughout medical literature, but we have been unable to find any summary of results in a given series of cases. The failure to report such results must be due largely to two reasons: first, the difficulty of accurately classifying cardiopaths into similar groups, and second, the fact that in ordinary work few observers have an opportunity to study any series of such patients needing surgical treatment. These reasons are sufficient to make us feel some temerity in reporting a series of such cases, and yet we feel that such a report may throw some light on the subject.

Experience here has taught us that the best measure of operative risk in cardiac disease is a good clinical impression of the patient's ability to stand physical strain, in addition, of course, to a good history and a physical examination. Cases in which the heart permits the patient to go about, or in which it can be sufficiently restored by treatment to allow this, usually have been considered safe for operation. The "goiter heart," the "fibroid heart," the "prostate heart," etc., are often so remarkably improved following operation as fully to justify the risk. Cardiac disease due to focal infection, particularly tonsillitis and rheumatism, often shows the same happy result following the removal of the focus. A malignant condition complicating heart disease is considered operable if a fair hope of cure is offered, and palliative operations are often indicated in such cases. In very few instances in which there has been urgent need of operation has it been refused on account of the cardiac condition, though in many, the operation has been undertaken only after preliminary medical treatment. The decision in each case is based on several factors: (1) the immediate operative risk; (2) the probable improvement of the condition of the heart following the operation; (3) the patient's relative chance for length of life or general health with and without the operation, and (4) in less serious conditions whether the operative relief will justify the increased risk.

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[2] Morison, Rutherford: Brit. Jour. Surg., 1917, 4, 659-678.

[3] Hepworth, F. A.: Lancet, London, 1917, 1, 573-574.

* From the Mayo Clinic.

Our experience in general has justified the taking of risks in cases demanding surgical intervention.

A rational classification of cardiac risks on a basis of valvular disease alone is impossible. Valvular disease, with myocardial compensation sufficient to allow marked exertion, does not increase operative risk. With reasonably good compensation, allowing moderate exertion with comfort, the risk is not greatly increased, that is, a mitral stenosis may be slight and not increase the risk. With moderately good compensation the risk is not great, whereas with a very badly damaged myocardium it may be greatly increased. Similarly an aortic lesion without cardiac symptoms is easily operable, whereas the heart would not be considered operable if there was marked angina associated with the lesion. Manifestly the presence of valvular disease alone gives a poor basis for grouping similar cases.

A classification based on attempts to measure the cardiac reserve is also impossible since we have no accurate means of measuring it, and clinical impressions are variable. Angina pectoris, aortic valvular disease with pain, and aortitis with dilated aorta are universally recognized as marked contraindications to operative interference; but the risk in such cases is variable, and so few patients have been operated on that a correct statement of the risk is impossible.

Recent advances in cardiac study, particularly of the electrocardiograph, have given opportunity for better classification. We have studied results in four groups of cases of disordered cardiac mechanism that are universally recognized as bad risks—the worst groups of risks, if we except angina pectoris and allied conditions. These groups are: (1) auricular fibrillation; (2) auricular flutter; (3) impaired auriculoventricular conduction, and (4) impaired intraventricular conduction. No clinician will take exception to the statement that these disorders include the worst of cardiac risks; they give definite objective findings and are accompanied usually by extensive myocardial damage. A history showing any such cardiac disorder should always be very carefully considered.

We did not have an opportunity to examine before operation all the patients having cardiac trouble, and therefore selected only those who had had electrocardiograms taken since August, 1914. These represent the larger number of surgical cases in which cardiac disease was a complication. Undoubtedly a few patients were so obviously in a bad condition that the clinician did not consider a complete examination necessary (that is, an electrocardiogram) and sent them home. If moribund patients and those bedridden by heart disease are excepted, our summary is a fair average of patients in whom cardiac operative risk is necessarily gravely considered. As we have mentioned, angina pectoris has not been included in the series because no evident grounds for grouping similar cases are apparent, and patients suffering severely from the condition are rarely considered operable.

AURICULAR FIBRILLATION

The mechanism of this disorder is now known to be rapid incoordinate contractions of individual muscle-bundles of the auricular wall, that is, fibrillary twitchings, descriptively called "fibrillation." The auricle loses its pumping function and becomes a dilated organ, acting only as a reservoir in the circulation. The condition is characterized in the larger number of cases by a totally arrhythmic pulse and often by a marked tachycardia. Usually fibrillation is a permanent cardiac disorder, though in a definite percentage of cases it is paroxysmal, with an established sinus rhythm between attacks.

Exophthalmic Goiter.—Extensive experience with hyperplastic toxic (exophthalmic) goiter makes it evident that fibrillation is an end-result of the disease toxin on the myocardium. The fibrillation is found in young patients when the toxemia is severe and has continued a long time. It is usually much less frequent under than above the age of 40.

We have recorded nine patients under 30 years of age, the youngest 21, and twelve between 30 and 40 years of age, a total of twenty-one patients under 40 years. This group comprises the worst risks. Usually the myocardiums of young patients stand the strain well; yet they have given out, and this is evidence of extreme toxemia and stress. A high mortality should be expected. One patient died following a Porter hot water injection; three died in from four to six weeks at home (reported as one cardiac death, two due to pneumonia); two died eight and fifteen months following thyroidectomy; that is, six of twenty-one patients died within fifteen months. We have recently heard from eleven of the fifteen remaining patients. Five report that they are almost or completely well, and six report definite to marked improvement. To recapitulate: Of twenty-one patients under 40 years of age with fibrillation due to exophthalmic goiter, one third are well, one third are improved definitely to markedly, and one third are dead.

In older patients (more than 40 years old) it is expected that the myocardium will break down more easily, and that it will show poorer recuperative power. We have recorded forty-nine patients more than 40 years of age with fibrillation, and have recently heard from twenty-one of them. Three are dead, one being an operative mortality, one dying six years after thyroidectomy and fifteen months after a radical operation on the breast for carcinoma (fibrillation clinically eleven years), and one dying in nine months from "heart failure." Eighteen of the series report as follows: Thirteen are much or completely relieved of cardiac symptoms, four are definitely improved though still cardiopaths, and one reports questionable improvement.

The gross operative mortality of seventy cases of fibrillation associated with exophthalmic goiter is two deaths, or 2.8 per cent., which compares very favorably with the present normal operative mortality of 2.6 per cent.

Thyrotoxic Adenomas.—This group represents the typical *Kropfherz* of Kocher, the "goiter heart." Clinical observation has long shown that certain patients with "simple goiter" after years of good health gradually develop thyrotoxic symptoms and cardiac disease. A considerable percentage of such patients later show auricular fibrillation; in seventeen cases of fibrillation there was one operative death, and two deaths in nine and twenty-three months, respectively. Seven other patients have been heard from; four are almost or completely well, two are definitely improved, and one is questionably improved.

Work on basal metabolism has shown that these patients have a constantly high metabolic rate, comparable to that of typical exophthalmic goiter. This, with the similar myocardial damage and the remarkable cardiac improvement in most cases after operation, makes the operative risk well worth while, and much smaller than is generally believed.

Other Diseases.—There were nine cases of fibrillation in patients less than 40 years of age and sixteen more than 40, making a total of twenty-five. The operations have been as follows: nine tonsillectomies, four excisions of epitheliomas (two lower lip, one gland of the neck, one larynx), one excision of a gland of the neck for diagnosis (sarcoma), three cholecystectomies and appendectomies, three gastro-enterostomies, two for ulcer, one for carcinomatous obstruction, one Talma-Morrison, one herniotomy, one cataract extraction, one suprapubic stab, and one cauterization of urethral caruncle. There were two early fatalities, one a postoperative death due to decompensation in the case of suprapubic stab, and one from cholangeitis following a gallbladder operation. One patient died a cardiac death nine months after tonsillectomy. Three others are dead, one death being reported as due to paralysis, one as due to peritonitis, and one as due to sarcoma. This makes six deaths in the twenty-five cases, only two of which were due to the cardiac condition. In recent reports from eleven patients, all but one say they are definitely to markedly improved as regards the cardiac complaint. The patients who had tonsillectomies seem to have done particularly well.

AURICULAR FLUTTER

This disordered cardiac mechanism is recognized as due to the rapid coordinate contractions of the auricles, stimulated by foci of irritation located in the auricular wall outside the normal pacemaker. The auricles contract at a rate of 200 to 380 and the ventricles usually at one half the auricular rate, though any rhythm from a 1:1 association to complete heart block may exist. The pulse is regular in one half of the reported cases and grossly irregular in the other half. The degree of block may vary from time to time, and most patients are subject to paroxysmal "weak spells," owing to a sudden decrease in the degree of block allowing the ventricles to assume the full auricular rate. The condition is usually chronic, and may exist for years. A "weak spell" during the operation is an evident danger, though we have not observed it. Four patients have been operated on, all included in the foregoing under fibrillation. These patients are of particular interest as apparently being the first proved cases of flutter in which an operation has been done.

We have reported elsewhere[1] that these four patients were subjected to vigorous digitalis and rest treatment until fibrillation was brought on and then the operation was done. Three of the patients had exophthalmic goiter, though one had a cholecystectomy and tonsillectomy in the clinic, and a thyroidectomy elsewhere later. One other patient had had a tonsillectomy. All the patients with exophthalmic goiter resumed a normal rhythm after the operation, and two had no cardiac symptoms. The last patient (tonsillectomy) reports himself greatly improved. Thus far, there has been no mortality.

PARTIAL OR COMPLETE HEART BLOCK

One patient with complete block has had three operations in eleven years—appendicectomy, amputation of breast for carcinoma, and excision of recurring skin nodules. The cardiogram was taken before the last operation, but the pulse was remarkably slow at the former examinations. The patient is alive and reasonably well. Six patients showing delayed conduction-time between auricles and ventricles, that is, auriculoventricular intervals of from 0.22 to 0.28 second, have been operated on as follows: three for diseased tonsils, one for exophthalmic goiter, one for thyrotoxic adenoma, and one for gallbladder disease. Thus far, we have no knowledge of a death in these cases. Four of the patients recently reported that they are markedly improved or cured.

INTRAVENTRICULAR BLOCK

This disorder is due to impaired conduction of the cardiac impulse after it has passed the bifurcation of the auriculoventricular bundle. It is evidence of disease in the main branches of the bundle or in the subendocardial plexus, causing a slow and ununiform diffusion of the contraction stimulus throughout the ventricular wall. Recently Oppenheimer and Rothschild[2] have excellently presented this subject and have called attention to the serious cardiac damage and the early fatality which it usually indicates. As a basis for clinical interpretation we have used for several years the same criteria which they present, and we are able to confirm their general findings in a larger series of cases (158).

The electrocardiographic curve in this condition shows a prolonged QRS complex (active ventricular phase), and variations of this up to the remarkable complexes which have been described as branch bundle defects. Undoubtedly such curves indicate extremely bad myocardial damage, as may be readily determined by ordinary clinical methods.

Relief of a probable infectious or toxic focus for the cardiac disease has seemed advisable, and operations have been done with this in view. Twelve patients have been operated on: seven tonsillectomies, four thyroidectomies (three exophthalmic goiter and one thyrotoxic adenoma), one ligation for exophthalmic goiter, and one salpingectomy. Six of the seven tonsillectomy cases had histories of rheumatic fever. One patient died of cardiac insufficiency one year after tonsillectomy; seven others (five with definite valvular disease) report definite to marked improvement in general health. It would seem, therefore, in such cases that if a surgical condition appears as a cause or aggravation of the cardiac disease, operation should be undertaken, particularly if goiter or tonsillitis is the disturbing condition. Five of our patients were 30 years of age and two were younger, and improvement is greatly desired for such young patients.

SUMMARY

We do not believe that valvular disease with good or reasonably good compensation should be considered as a contraindication to operation, because the surgical risk is not materially increased in such cases. Careful anesthesia is, of course, essential. In the Mayo Clinic, the record of 120,000 ether anesthesias with but one death under anesthesia is evidence of the remarkable safety of ether when properly administered.

The best idea of the cardiac risk in surgical cases is derived from a carefully balanced impression of the patient's general ability to stand stress. If the patient is ambulatory without marked decompensation, operation is usually safe. If marked cardiac insufficiency is evident, the patient should be medically treated until a fair degree of compensation is restored.

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[1] Blackford, J. M., and Willius, F. A.: Auricular Flutter, *to be published.*

[2] Oppenheimer, B. S., and Rothschild, M. A.: Electrocardiographic Changes Associated with Myocardial Involvement, The Journal A. M. A., Aug. 11, 1917, pp. 429-431.

Surgical intervention should not be undertaken in a cardiopath unless there is definite reason to believe that the surgical relief is essential to reasonable health or will improve the cardiac condition. "Meddlesome surgery" has a fuller meaning in treating cardiopaths.

Extremely severe cardiac disease can often be definitely to completely relieved by the removal of an infectious, mechanical or toxic source of cardiac strain or degeneration. In cardiopaths suffering from goiter the relief is often beyond all expectations. Not infrequently in such cases patients are transformed from confirmed invalids to active, useful persons.

Of one hundred patients operated on with auricular fibrillation, there was a gross surgical mortality of 5 per cent.; but in only 3 per cent. death was due to cardiac disease. That is to say, 3 per cent. represents the increased risk in one hundred patients. Thirteen per cent. have died since leaving the clinic. Forty-seven others report as follows: Eight are subjectively well, twenty are markedly improved and able to lead fairly active lives, sixteen are definitely improved but still obliged to avoid exertion, and three report little or no improvement.

Four patients with auricular flutter were operated on after fibrillation was brought on by treatment. Two are subjectively well, and two are markedly improved.

Seven patients with partial or complete heart block (six partial, one complete) were operated on, with no deaths. Three of the patients are markedly relieved, and one is unaware of cardiac difficulty at present. The complete block is unchanged.

Twelve patients with intraventricular block were operated on, with the result that one died a year following tonsillectomy, and seven report definite to marked improvement, in spite of evident valvular disease.

We wish to emphasize the fact that these results are given with the belief that they represent what are usually considered the worst surgical cardiopathic risks (except angina and allied conditions). With few exceptions they include all cases of bad cardiac disease in the clinic that needed surgical treatment.

Myocardial insufficiency finally reaches a point at which there is no possibility of improvement with any method of treatment with which we are familiar. We know only of the therapeutic test to determine this point in doubtful cases, and the foregoing results show that until such a stage of decompensation is reached the patient should at least be given the chance of surgery. The improvement following surgical interference in suitable cases has been so remarkable as fully to justify accepting the somewhat increased risk. The general tendency unquestionably is to overestimate the danger of operative fatality. In cases in which surgery can relieve, cardiopaths should not be refused operation, at least until a therapeutic trial has been given for the reestablishment of some compensation.

Patients with arrhythmia, particularly fibrillation, stand operation remarkably well after medical treatment. It may be said that the fibrillating auricle has whipped the ventricle until continued ventricular action proves a reasonably good ventricular power, and life depends on ventricular, not auricular, action. Our ability to estimate operative risk depends on our ability to estimate the ventricular reserve, and remarkably little reserve seems necessary to carry the patient through good ether anesthesia. That we may err in judgment is evidenced by our three cardiac surgical deaths, and eight other deaths within a year from cardiac insufficiency. However, the general results of definite to marked improvement in about 80 per cent. of suitable cases is ample justification for accepting the increased mortality.

From the foregoing study we seem justified in making the following definite conclusions: first, that many properly selected cardiopaths, often considered hopeless, may be relieved by surgical measures, and second, that the general tendency at present is to require too great a margin of cardiac safety in surgical work.

THE BRUCK PRECIPITATION TEST FOR SYPHILIS

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Since the adoption of the complicated complement fixation test for syphilis, repeated attempts have been made to simplify it or to substitute for it a simple chemical test. Most of these substitute tests have been precipitation tests, and so far all have failed to attain any practical degree of diagnostic accuracy. Bruck,[1] the collaborator of Wassermann on the complement fixation test, has recently brought out another, for which he claims specificity. Since the war began he has continued his research under the restricted facilities of a field hospital, and found that the nitric acid precipitate in syphilitic serum dissolved more slowly on neutralization with alkalis, than the precipitate in normal serum. He then sought the quantity of distilled water necessary to dissolve the normal precipitate without dissolving that in syphilitic serum. The test thus evolved has given good results in his hands, and he suggests that it be tried out by other experienced laboratory workers in the hope that it may be of use in diagnosis or at least may shed further light on the character of syphilitic serum. He suggests that it may be of especial value to the military surgeon unable to obtain the help of the Wassermann reaction, in determining whether or not it is necessary to send certain patients back from the front for antisyphilitic treatment. In view of the needs of the approaching time of demobilization of the troops, he suggests that any additional aid to the diagnosis of syphilis will be welcome.

As a reagent he uses the acidum nitricum purum of the German pharmacopeia, which is about 25 per cent. nitric acid with a specific gravity of 1.149. Five-tenths c.c. of clear serum is put into a large test tube, 2 c.c. of distilled water added, and the tube shaken. Then, the exact time being noted, exactly 0.3 c.c. of the reagent is added, the tube again shaken, and allowed to stand ten minutes at room temperature. To the white precipitate thus formed, 16 c.c. of distilled water are then added, and the tube, capped by the finger, is carefully inverted three times, the formation of froth being avoided. Again the tube is allowed to stand ten minutes and then inverted three times in the same way, froth formation always being avoided.

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[1] Bruck, C.: Eine sero-chemische Reaktion bei Syphilis, München. med. Wchnschr., 1917, 64, 25.

After the tube has stood for half an hour at room temperature, the reaction may be read. All tubes showing more than slight opalescence are read as positive, all tubes with clear contents as negative. The author suggests that the reading is easier if the tubes are allowed to stand twelve hours, when the precipitate will be seen at the bottom. The tubes then showing only a slight precipitate, *kleine kuppe*, are to be read as doubtful or negative. The necessity of accuracy in measurement of the reagent, and in timing the various parts of the reaction is emphasized.

In about 200 syphilitic serums there was practically complete agreement with the Wassermann reaction. Only three Wassermann positive serums, from one latent and two secondary cases, gave negative Bruck reactions. On the other hand, one case of congenital syphilis and one tertiary case gave positive Bruck reactions, although the Wassermann test was negative. Of about 200 nonsyphilitics, all were negative except four cases of old infected wounds of knee and thigh, long febrile, and one febrile case of tuberculosis. A positive test in a febrile case, therefore, is not trustworthy.

Bruck does not put forward his test as a substitute for the Wassermann reaction, but thinks that it may possibly be due to the same peculiarity of syphilitic serum responsible for the Wassermann reaction, and that it may be useful in connection with the latter. If it proves a practical aid to diagnosis, it has the great advantages of requiring only a simple laboratory outfit, a single stable reagent, and little time.

I have performed the new test under the conditions prescribed by the author in 209 cases. In fifty-three of these, more than 25 per cent., the results disagreed with those of the Wassermann reaction. In thirteen cases of active early syphilis, in all of which the Wassermann reaction was very strongly positive, the new test was negative. On the other hand, 24 per cent. of seventy-four nonsyphilitics gave positive Bruck reactions. These occurred in one febrile case of septicemia and in sixteen afebrile cases, one of gonorrheal urethritis, one of gonorrheal arthritis, one of xanthoma planum et tuberosum, one of systemic blastomycosis, one of dermatitis venenata, and in one healthy man, three nursing women and eight pregnant women, apparently healthy.

COMPARATIVE RESULTS OF TESTS

Diagnosis	No. of Cases	Positive Wassermann Reactions Per Cent.	Positive Bruck Reactions Per Cent.
Early active syphilis	31	100	58
Late active syphilis	12	92	58
Latent syphilis	54	67	20
Nonsyphilitic	74	0	24

Bruck states that either active or inactivated serum may be used for the test. In 115 cases in which I have performed the reaction with both active and inactivated serum, the result was the same in ninety-eight cases, but differed in seventeen. In fourteen cases the active serum gave a positive reaction, the inactivated a negative, while in three cases the reverse occurred. That these differences were not all accidental, from slight differences in technic such as Smith and Solomon[2] have shown to be important, was indicated by the fact that repetition of these tests in many instances gave exactly the same result. The only departure from the original technic as published by Bruck was that the tubes were allowed to stand over night, from eighteen to twenty hours, before being read. Attempts to read them within a few hours were discontinued as valueless, for it was impossible to say which tubes would give a precipitate and which would not. The author of the test himself advises that they be allowed to stand twelve hours before being read. In every other respect the technic as given by Bruck has been carefully followed.

Since this paper was begun, Smith and Solomon[2] have reported their results in a series of 400 cases. They insist on several refinements of technic omitted by the originator of the test; but in spite of their use of these, their results disagreed with those of the Wassermann reaction in 25 per cent. of the cases, and in 302 nonsyphilitics they had 28 per cent. of doubtful or positive reactions. In syphilis of the central nervous system their Bruck reaction differed from the Wassermann in only ten of sixty-nine cases, or 14 per cent. In twenty-two other syphilitics the two reactions differed five times, or 23 per cent. These are better results than I obtained in my series of ninety-seven syphilitics in all stages, for I had 35 per cent. disagreements with the Wassermann reaction, in nearly all of which the Wassermann was correct. On our whole series we agree in having had disagreement between the two reactions in 25 per cent. of cases.

The new reaction in my hands was remarkably weak in early, untreated syphilis, giving negative reactions so often as to make it useless for the diagnosis of this class of cases. To make certain that there was no mistake about the negative Bruck reaction in these cases, I repeated the tests in many of the cases, always with the same result. When this is considered along with 24 per cent. of positive reactions in nonsyphilitics, which were also carefully checked by repetition, the uselessness of the test for diagnostic purposes is apparent.

That syphilitic serum differs from most other serum in regard to the ease with which it can be precipitated has been shown in many ways since Fornet and Schereschewsky,[3] in 1907, proposed a ring test for syphilis, made by overlaying the serum in a case of tabes or paresis with the serum in a case of early syphilis. At the line of contact between the two serums, a ring of precipitate appears. Michaelis and Citron showed that mixture of syphilitic serum with extract of syphilitic liver produces a precipitate. Porges and Meier[4] devised a precipitation test by the use of an emulsion of lecithin as reagent. Klausner offered a test consisting of the dilution of active serum with distilled water, giving a precipitate in twenty-four hours in case the serum is syphilitic. Elias, Neubauer, Porges and Salomon[5] used sodium glycocholate as the precipitating reagent. To this Herman and Perutz later added cholesterin in a vain effort to perfect the reaction for diagnosis.

The Bruck nitric acid precipitation test seems destined to take its place beside these. In fact, the results obtained by Fritz and Kren[6] in their trial of the lecithin and sodium glycocholate tests were not very different from the results of the Bruck test. In a series of fifty-nine syphilitics, they obtained with the lecithin test 63 per cent. positive reactions, and in twenty-four nonsyphilitics, 50 per cent. positive reactions. With sodium glycocholate there were 65 per cent. positives in syphilitics and only 17 per cent. positives in nonsyphilitics. All the precipitation reactions show in a large proportion of syphilitics an increased amount of some substance which, however, is also present in like amount in a smaller proportion of nonsyphilitics. The fixation of complement by the combined action of syphilitic serum and extract of liver or heart remains the only property of syphilitic serum thus far discovered that is not shared by so large a percentage of nonsyphilitics as to preclude its use for diagnosis.

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[2] Smith, C. E., and Solomon, H. C.: The Bruck Sero-Chemical Test for Syphilis, Boston Med. and Surg. Jour., 1917, **177**, 321.

[3] Fornet and Schereschewsky: Serodiagnose bei Lues, Tabes und Paralyse durch specifische Niederschläge, Deutsch. med. Wchnschr., 1907, **33**, 1679.

[4] Porges, O., and Meier, G.: Ueber die Rolle der Lipoide bei der Wassermann'schen Syphilis Reaktion, Berl. klin. Wchnschr., 1908, **45**, 731.

[5] Elias, Neubauer, Porges and Salomon: Wien. klin. Wchnschr., 1908, **21**, 376.

[6] Fritz, W., and Kren, O.: Ueber den Wert der Serumreaktion bei Syphilis nach Porges-Meier und Klausner, Wien. klin. Wchnschr., 1908, **21**, 386.

CONCLUSIONS

1. The Bruck precipitation test for syphilis fails in a considerable percentage of early secondary syphilis.
2. It gives positive reactions in from 24 to 28 per cent. of nonsyphilitics.

THE PHARMACOLOGY OF THE OIL OF CHENOPODIUM

WITH SUGGESTIONS FOR THE PREVENTION AND TREATMENT OF POISONING *

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The oil of chenopodium is an essential oil which is distilled from American wormseed or Jerusalem oak, a weed quite common in Maryland and in the states farther south. It first came into use in therapeutics in the treatment of ascariasis, but in recent years it has also become the chief remedy against ankylostomiasis, and is at present practically the only drug used for the eradication of this disease. As shown in the reports of the International Health Commission,[1] the number of patients treated with the oil of chenopodium is very large. It has been employed in several million cases of hookworm in the last few years.[2] Its behavior in the body is therefore a matter of considerable interest, not only to the pharmacologist, but also to those specially interested in the treatment of hookworm and other intestinal parasites. The obvious necessity of making the information concerning its action readily available suggested to me the advisability of presenting this summary of the results of pharmacologic investigations.

PHYSIOLOGIC ACTION

That the action of oil of chenopodium is not confined to the effect on the organisms against which it is directed has been established by experiments on animals. Brüning[3] was the first to call attention to its toxicity by tests on different animals, but the action of the drug has since been made the subject of more extensive investigation in this laboratory. Nelson and myself[4] have shown that oil of chenopodium is a strong local irritant, causing severe inflammation of the mucous membranes. Even very small quantities may prove very toxic and cause death when given to different animals. One-half c.c. of the oil given by mouth to a medium-sized rabbit produced symptoms of severe poisoning, such as vomiting, convulsions, coma, paralysis, and death. The active dose was smaller for cats, 0.2 c.c. per kilogram of oil of chenopodium being toxic, and 0.25 c.c. per kilogram proved fatal. Dogs were much more resistant than cats, but severe symptoms of poisoning were likewise observed in these animals. Of particular importance is the observation we made that a dose which is not effective at first may cause serious symptoms and death when repeated within one or several days. We noticed that sensitiveness to the oil of chenopodium persisted for from five to nine days. This is well worth remembering when the dose has to be repeated, as is sometimes the case, in the treatment of hookworm, for the first dose may not prove efficacious and a second or third dose is required to accomplish the desired result. Attention was also called to the effect of the nutritional condition and of diet on the toxicity of the oil. Fasting or poorly nourished animals succumbed to much smaller doses. The resistance was noticeably greater, on the other hand, in animals that had been receiving a rich carbohydrate diet for several days before the oil was given, or when the administration of the oil of chenopodium was preceded by a sufficient quantity of fatty oil, such as olive oil, coconut oil, or castor oil. Quantities which invariably caused death were survived without the production of symptoms of poisoning when any of these oils were given shortly before or after the administration of oil of chenopodium. Very satisfactory results were also obtained when several doses of about 15 c.c. of the fatty oils were given during two or three days preceding its administration. That disturbance of renal function may be caused was shown in experiments in which the permeability of the kidney was tested after the administration of the oil of chenopodium, for Bengis and myself[5] observed that fat-soluble dyes injected subcutaneously or when fed by mouth failed in some cases to be eliminated in the urine of rabbits under these conditions. Its effect on the kidney was further illustrated in another series of experiments in which evidence was obtained indicating that under certain conditions it may cause renal irritation, even when combined with some substances that were otherwise its physiologic antagonists. Albumin and casts were frequently found when it was given in an emulsion in acacia to rabbits. But when oil of chenopodium was dissolved in one of the fatty oils which, as previously mentioned, decreased the general toxicity of oil of chenopodium, renal irritation became more marked. This, as indicated in a recent report[6] from this laboratory, is probably due to the combined action of the two, that is, the oil of chenopodium and the fatty oil each producing renal irritation, the effect being enhanced when both were given together. It is important to point out in this connection that this does not apply with equal force to carnivorous animals, as the same amounts of oil of chenopodium and coconut oil fed to cats seldom produced these results.

Its poisonous nature was also shown by the tendency to cause depression of the circulation and respiration, as well as to lessen the intestinal movements. In experiments on different animals under anesthesia it was observed that blood pressure may fall considerably in some instances, as 0.02 c.c. of oil of chenopodium per kilogram when injected intravenously may

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* From the Pharmacologic Laboratory, Bureau of Chemistry, U. S. Department of Agriculture, Washington, D. C.

[1] Report Int. Health Com., Washington, D. C., 1915.

[2] Personal communication from Dr. Victor Heiser.

[3] Brüning, H.: Ztschr. f. exper. Path. u. Therap., 1906, **3**, 564.

[4] Salant, W., and Nelson, E. K.: Am. Jour. Physiol., 1915, **36**, 440.

[5] Salant, W., and Bengis, R.: Jour. Biol. Chem., 1916, **27**, 403.

[6] Salant, W., and Bengis, R.: Jour. Pharmacol. and Exper. Therap., 1917, **9**, 529.

be followed by a fall of blood pressure amounting to 40 or 50 per cent.[7] Although this was not the rule, it is well to bear in mind that it occurred with sufficient frequency to serve as a warning to the clinician of the nature of the drug he is prescribing. Evidence was obtained that the action might be due to direct effect on the heart. This was also shown in an extensive series of experiments on the isolated frog heart.[8] Very small quantities proved to be quite active, as one minim of the oil of chenopodium to 100 c.c. of Ringer's fluid, when perfused through a normal frog heart, produced marked depression and sometimes arrest of the heart in diastole. In numerous observations on different animals under chloretone or morphin-ether anesthesia it was also noticed that respiration may be depressed or even completely inhibited[9] when the oil of chenopodium is injected intravenously in the form of an emulsion. That the oil of chenopodium is a general depressant is further shown by the effect produced on peristalsis.[10] The movements of the isolated intestines in intact animals may be inhibited by the oil of chenopodium. According to Muirhead and Gerald[11] uterine contraction may likewise be inhibited if the isolated organ is exposed to the oil, provided, however, the concentration is not too low.

Little is known of its fate in the body, but it might be inferred by analogy that, like other essential oils, it is conjugated with glycuronic acids. It is apparently not eliminated uncombined in the urine or in the bile for its odor in these fluids was never detected. On the other hand, its elimination by the lungs[12] was observed in experiments on animals after its intravenous administration, for the characteristic odor in the expired air was unmistakable. It is evident, therefore, from the experimental data cited above, that the drug is very active. That this also holds for human subjects is shown by the incidence of poisoning with this drug. Levy[13] reported twelve cases, nine of which were fatal. Coutant[14] reported recently one case of severe poisoning, but the patient recovered. I have been informed of several cases that have come under the observation of the medical officers of the International Health Commission.[15] The substance under consideration should therefore be handled with caution when used for internal medication as its has a tendency to affect the central nervous system, the heart, respiration, digestive organs, and the kidneys. In the presence of renal or cardiac disorders the oil of chenopodium should be given in small doses only, while in advanced cases of chronic nephritis or heart disease its use would seem to be altogether contraindicated.

As the liver undoubtedly plays an important part in detoxifying the oil of chenopodium while abnormal changes in the gastric and intestinal mucosa may accelerate its absorption into the circulation, it may be expected that in hepatic and gastro-intestinal diseases it may likewise prove more toxic. The importance of the nutritional condition in determining the toxicity of oil of chenopodium has been established by experiments on animals, as has been sufficiently indicated. This applies also to human beings. The case reported by Coutant furnishes evidence of the effects of the drug when administered to the poorly nourished and weak individual. Two doses of 10 minims each given in twenty-four hours were toxic, but the patient was 21 years of age and weighed only 95 pounds.

TREATMENT OF POISONING

Since cases of poisoning are sure to occur, the question of treatment deserves consideration. When large doses have been swallowed lavage may be resorted to with beneficial results. If carried out promptly after the oil is taken it may prove effective in preventing serious consequences, since absorption of the oil from the stomach is slow. In experiments that Livingston and I[16] carried out we often found that several hours may elapse before evidence of absorption into the circulation could be obtained, when the oil was introduced into the stomach of animals, the pylorus having been ligated previously.

The importance of not delaying lavage too long after the poison has been swallowed is further emphasized by the fact that absorption from the duodenum was found, on the contrary, to be very rapid. In some of the experiments in this laboratory the introduction of oil of chenopodium was followed by the immediate appearance of the characteristic effect on the circulation.

No chemical antidote has yet been found. The treatment in cases of poisoning would, therefore, be symptomatic. Stimulation of the respiratory and the circulatory systems would undoubtedly be of value. In experiments on the isolated heart, we found that digitalis and epinephrin are excellent antagonists. The stimulating action of digitalis has been found to be very persistent, and may comepletely overcome the depression caused by the oil. Caffein was also tried out. It, on the contrary, aided the action of the oil of chenopodium. Heart action ceased altogether when perfusion with caffein followed treatment with chenopodium. The action of caffein in poisoning with chenopodium may be different, however, in intact animals, and is being investigated in this laboratory.

While oil of chenopodium may be regarded as a safe remedy for patients in good physical condition, it should be used very cautiously in poorly nourished and weak or neurotic individuals. A diet containing a liberal amount of fats and carbohydrates, fed at least for several days before the treatment is instituted, may render the drug much safer. The routine administration of large doses of castor oil before and soon after oil of chenopodium, as recommended by Hall and Foster,[17] should be given serious consideration, as it may prove to be of prophylactic value.

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[7] Salant, W., and Livingston, A. E.: Am. Jour. Physiol., 1915, 38, 67.

[8] Salant, W., and Livingston, A. E.: Am. Jour. Physiol., 1916, 41, 21.

[9] Salant, W., and Livingston, A. E.: Am. Jour. Physiol., 1915, 38, 67.

[10] Salant, W., and Mitchell, C. W.: Am. Jour. Physiol., 1915, 39, 37.

[11] Muirhead, A. L., and Gerald, H. F.: Jour. Pharmacol. and Exper. Therap., 1916, 8, 253.

[12] Salant, W., and Livingston, A. E.: Proc. Soc. Exper. Biol. and Med., 1915, 12, 132.

[13] Levy, R. L.: Oil of Chenopodium in the Treatment of Hookworm Infections, The Journal A. M. A., Nov. 28, 1914, p. 1945.

[14] Coutant, A. E.: Chenopodium Poisoning, The Journal A. M. A., Nov. 25, 1916, p. 1599.

[15] Personal communication from Dr. Victor Heiser.

[16] Salant, W., and Livingston, A. E.: Proc. Soc. Exper. Biol. and Med., 1915, 12, 132.

[17] Hall, M. C., and Foster, W. D.: Oil of Chenopodium and Chloroform as Anthelmintics, The Journal A. M. A., June 30, 1917, p. 1961.

Acute Intestinal Troubles in Germany.—The *Nederlandsch Tijdschrift* quotes from J. Schwalbe in the *Deutsche medizinische Wochenschrift*, No. 33, that diarrhea is prevalent, especially in northern Germany. He has been making a collective inquiry on the subject, and states that on account of the lack of bacteriologic examination it is impossible to say to what extent contagion is involved, but that in any event the bread and the poor quality of the food have certainly not a little to do with it.

THE SYNDROME OF MILD REVERSE PERISTALSIS *

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Digestion seems to suffer very little from disturbances of secretion. Many physicians have commented on the fact that we often discover achylia gastrica accidentally in patients who have no complaint to make about their digestion. The great obstacle to making an early diagnosis of cancer of the stomach is the fact that although the mucous membrane may be almost or entirely gone, these patients ordinarily have no symptoms until the growth is large enough to block the pylorus. They will then have trouble until a channel sloughs through the tumor, after which they may be perfectly comfortable again. Similarly, there may be no complaint of indigestion after extensive resection of the bowel. Men have lived in comfort, except for an occasional diarrhea, after removal of one half of the small intestine. As Taylor[1] has aptly said, we seem to have "duplicate plants" for chemical digestion. If pepsin fails, the pancreatic ferment can come to the rescue, and when that is shut off, the gastric and intestinal ferments can, between them, do remarkably well. On the chemical side, the factors of safety are large; on the mechanical side, there is only the one muscular tube which cannot be replaced.

The conclusion, then, and it is one of the most important that the gastro-enterologist should keep in mind, is that gastro-intestinal symptoms are motor symptoms—they arise when the normal progress of the food is disturbed. We can conceive, now, of four types of motor disturbance: (*a*) speeding up of the current; (*b*) slowing; (*c*) complete stoppage, and (*d*) reversal. It is strange how little thought has been given in medical literature to the last-named possibility. We know that when a loop of bowel is distended or stimulated at any point, it can send off impulses in both directions, just as a stone thrown into a canal sends waves upward as well as downward.[2] That retrograde progress from anus to pharynx can rapidly take place has been well known since the time of Galen. All physicians have observed fecal vomiting in ileus; and many have seen the vomiting of suppositories and enemas by nervous women.[3] I have talked with a number of intelligent persons who objected to their nutrient enemas because of the bitter taste of the peptones given. Dr. Emge of this city tells me that after severe pelvic operations it has been his custom to give coffee enemas, which soon tinge the vomitus. The first time it happened he thought it was due to hemorrhage, but chemical analysis showed that it was coffee and not blood. This article could be filled with such observations culled from medical literature.[4]

It is now well known that barium enemas almost always flow back into the ileum and sometimes even into the duodenum.[5] I have seen liquid and gas pass rapidly from the colon to the duodenum in cats. The animals were anesthetized and their abdomens opened under salt solution. In order to produce this backflow, the rectum was tied off, and the colon filled with a thick soup. After this part of the bowel had become very irritable and highly tonic through its efforts at emptying, some of the material would be rushed well up into the small intestine. We know that reverse peristalsis is normal in the right half of the colon; and the return of feces from the rectum to the upper colon has been observed.[6] Boldireff and others have shown that the regurgitation of duodenal contents into the stomach is a physiologic and common occurrence.[7]

Granting, then, that reverse transport[8] of material is a common happening in the tract, and that its severe manifestations, such as fecal vomiting, are generally known, we must face the probability that milder forms are passing unrecognized. A few years ago we were diagnosing hyperthyroidism only in the cretin and in the equally deformed myxedematous; today we look for the "formes frustes" in which there is perhaps some drowsiness, a dry, hairless skin or a deficient menstrual flow. In the following paragraphs I wish to discuss briefly a few symptoms which are often found together, or alternating one with the other in the same patient, and which I believe indicate mild reverse peristalsis. The most important ones and those about which I feel surest are vomiting, regurgitation, heartburn, belching, nausea, "biliousness" and coated tongue.[9] Less important and more doubtful are globus, foul breath, and the feeling of fulness immediately after the beginning of a meal.

This article is, in many ways, a sequel to one previously published.[10] Those who have read that article will undoubtedly find it easier to understand the arguments advanced at this time. The principal point to be remembered is that the digestive tract is a muscular tube in which material moves from regions of high tone, high rhythmicity and high irritability to regions of lower tone, lower rhythmicity and lower irritability. The presence of food or of an irritating lesion in any part of the tract tends to raise the tone and irritability of that point, and in this way the normal gradient may be upset. The following experiments of Hess and Kelling may help to explain what is meant by the gradient of forces in the tract. Hess[11] put a small balloon into the bowel of a dog. A string fastened to the balloon ran out of a gastric fistula and over a pulley. At the end of the string was a little bag which could be filled with shot until its weight stopped the progress of the balloon. Eighteen cm. from the pylorus, 228 gm. were needed to balance the pull exerted by the muscle; 20 cm. farther down the pull was only 90 gm., and 12 cm. below, or 50 cm. from the pylorus, the pull was 75 gm. In a man with a jejunal fistula, I found a similar marked decrease in the pull exerted by the muscle as the balloon went down the intestine. The sluggishness of the ileum was in marked contrast to the great irritability of the jejunum. Kelling[12] has shown a reversal of these forces in dogs in which the ileum was tied just above the ileocecal sphincter. Next day, a manometer tied into the active ileum, 20 cm. above the obstruction, showed pressures varying between 10 and 20 cm. of water; while in the jejunum, the pressure was from 0 to 5 cm. It can easily be seen that under such conditions, fluids would flow backward toward the stomach.

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* From the George Williams Hooper Foundation for Medical Research, University of California Medical School.

[1] Taylor: Digestion and Metabolism, Philadelphia, Lea and Febiger, 1912, pp. 152, 153.

[2] Cannon, W. B.: Am. Jour. Physiol., 1909, **23**, xxvii; The Importance of Tonus for the Movements of the Alimentary Canal, Arch. Int. Med., October, 1911, p. 117.

[3] In a case reported by Treves, enemas of castor oil and methylene blue solution were vomited within ten minutes of their administration. He operated, expecting to find a gastrocolic fistula, but found no such cause for the phenomenon (Lancet, London, 1898, **1**, 643). A review of the literature reveals that a surprising number of these patients have been operated on for supposed gastrocolic fistulas.

[4] Weber, F. Parkes: Brain, 1904, **27**, 170. Langmann: Jacobi Festschrift, New York, 1900, p. 375. Schloffer: Beitr. z. klin. Chir., 1899, **24**, 392.

[5] Quimby: Am. Jour. Roentgenol., 1914, **1**, 403.

[6] Schwarz: München. med. Wchnschr., 1912, **59**, 2155. Drummond: Brit. Med. Jour., 1914, **1**, 240.

[7] Boldireff states that in animals which have fasted for some time, intestinal juice will run out of a gastric fistula continuously in large amounts, from 100 to 300 c.c. in fifteen hours (Zentralbl. f. Physiol., 1904, **18**, 457).

[8] The term "retrograde transport" will be used in a unmber of places in which the present state of our knowledge does not permit me to say that actual reverse peristalsis occurs. More work will have to be done before we know in all cases just what type of contraction causes material to move orad.

[9] Leube has discussed just these symptoms under the title "Nervous Dyspepsia" in an excellent article in the Verhandlungen des Kongresses für innere Medizin, 1884, **3**, 204.

[10] Alvarez, W. C.: The Motor Functions of the Intestine from a New Point of View, The Journal A. M. A., July 31, 1915, p. 388.

[11] Hess: Deutsch. Arch. f. klin. Med., 1886-1887, **11**, 105.

At times, the gradient may perhaps become leveled. In a number of cases of duodenal ulcer, I have watched contraction rings appearing in various parts of the stomach and dying out again, apparently unable to advance as waves in the direction of the ulcer. A still commoner finding with duodenal ulcer and chronic appendicitis is the stomach that fails to empty itself after six hours, in spite of active peristalsis and a patulous pylorus. Roentgenologists used to speak of pylorospasm in these cases, but more and more they are realizing that the pylorus is not always at fault. Those who have learned to milk a cow will understand more easily what I mean, when they remember that it is not powerful and rapid squeezing that brings the milk, but a coordinated contraction beginning at the base of the teat and spreading downward. Many think when the barium meal does not advance that there must be either a contracted area ahead or else that the muscle is atonic. The following experiment shows that neither of these conditions need be present:

> A rabbit was anesthetized (with urethan) and its abdomen opened under salt solution. The lower ileum was pinched with a hemostat so that the tissues were slightly bruised. After five or six hours, the bowel above the pinch was found distended with fluid, and contracting powerfully here and there. In spite of this activity and the fact that the lumen of the bowel was in no way occluded, nothing had been able to approach within 15 cm. of the injured, hypertonic region.

In my previous paper, I discussed upsets in gradient due to irritating lesions and to the introduction of food or other substances into the lower part of the tract. Since then, some work on smooth muscle has suggested another and possibly a very important way in which the gradients may be upset. I was able to show that the aboral progress of waves over the stomach is due, at least in part, to the fact that the latent period of the muscles around the cardia is less than that of the muscle in the pyloric antrum.[13] The muscle at the cardia is very sensitive to trauma or to adverse conditions, while that in the antrum is so hardy that it will often react better after it has been for forty-eight hours in the ice-box. This peculiar difference in the muscle from the two ends of the stomach is probably responsible for the fact that the gradient of latent period is actually reversed in distempered or sickly dogs. In these animals, the disease toxins apparently injure the sensitive cardiac muscle to such an extent that it reacts very sluggishly to strong currents. The antral muscle, on the other hand, generally contracts even more promptly than in normal animals. It seems very probable that this reversal of the gradient has something to do with the unwillingness of these dogs to take food.[14] Recent work, yet unpublished, shows that a similar reversal takes place in the gradient of latent period in the intestine in these diseased animals.

Very similar observations have been made on the heart. In the ascidian, the heart is a straight tube, one end of which acts for a while as pace-maker because it is the region of highest rhythmicity. It suffers most from fatigue, however, so that before long the other end of the heart is left with the higher rhythmicity; this now takes the lead, and the blood current is temporarily reversed. A similar upset takes place from time to time in the selachian heart.[15] Although the gradient is more stable in the hearts of higher forms of life, it has recently been discovered with the string galvanometer that a number of supposedly normal dogs have atrioventricular rhythm, that is, the gradient of rhythmicity in their auricles is reversed[16] In some human cases, a reversal has been observed which has righted itself as the patient improved in general health.[17] It seems to me very likely that the steepness of the gradient of forces in the gastro-intestinal tract varies a great deal, not only in different people, but at different times in the same person. The dyspeptic who goes on a vacation probably develops a steeper gradient; rough food will then be carried along without "hanging up" anywhere; his indigestion will go and his bowels will move normally.

Perhaps we can explain in this way the nausea and vomiting of nervous, worn-out women. Some of the most striking manifestations of reverse peristalsis are observed in the hysterical. Roentgenographic examinations and exploratory operations often reveal nothing to account for the trouble, and it can be cured only by rest and overfeeding.

VOMITING

The progress of gastro-enterology has been greatly hampered by the idea that the stomach is the organ of digestion. Even physiologists have been so blinded by this idea that very few of them have paid any attention to the behavior of the intestine during vomiting. My own experience soon convinced me that vomiting may begin with increased tone and activity in the jejunum.[18] I was able to confirm Ewald's statement that in ileus the stomach is filled with intestinal contents long before fecal vomiting appears.[19] Vomiting has been produced in dogs by reversing stretches of jejunum, so that the current would set backward toward the stomach. These dogs could be kept alive and comfortable if fed soft foods slowly. Large meals or rough food would be rejected.[20] It has been shown repeatedly that the vomiting is not due to the irritation of bile and pancreatic juice in the stomach,[21] so I believe it must often be due to, and part of, the reverse peristalsis beginning in the bowel. It should be noted that vomiting is often severe with low intestinal lesions and that it may be entirely lacking in serious gastric disease, such as ulcer and carcinoma (without pronounced pyloric obstruction).[22]

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[12] Kelling: Ztschr. f. Biol., 1903, **44**, 249.

[13] Alvarez, W. C.: Am. Jour. Physiol., 1916, **41**, 321.

[14] Alvarez, W. C.: Am. Jour. Physiol., 1917, **42**, 430, 446.

[15] Bottazzi: Ztschr. f. Physiol., 1902, **43**, 404.

[16] Eyster and Meek: Heart, 1913-1914, **5**, 119.

[17] Williams and James: Heart, 1913-1914, **5**, 112. Hart: Ibid., 1912-1913, **4**, 128.

[18] Openchowski (Zentralbl. f. Physiol., 1889, **3**, 4), in describing vomiting says, "In the beginning, great activity of the intestine" (anfangs starke Unruhe der Gedarme). Poensgen says waves have been observed to travel from the duodenum on to the stomach in vomiting (Motor Verricht. d. menschl. Magens, 1882, p. 8). Similar statements have been made by Wepfer, quoted by Brinton (Cyclopedia of Anatomy and Physiology, London, 1859, **5**, 317) and by Muller (Handbuch der Physiologie, 1835, **1**, 485). Boldireff noted, during some experiments, that periods of intestinal activity were often accompanied by vomiting (Zentralbl. f. Physiol., 1904, **18**, 489). I once attended a child with severe recurrent vomiting in whom the attacks were preceded by violent intestinal peristalsis and borborygmus loud enough to be heard across the room. I have also seen vomiting of the food given through a jejunal fistula. Such feeding must be done very slowly with the food exactly at body temperature. Vomiting has been observed also in feeding by duodenal tube (Stockton: Diseases of the Stomach, New York, D. Appleton & Co., 1914, p. 81).

[19] Ewald: Berl. klin. Wchnschr., 1907, **44**, 1416.

[20] Mühsam: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1900, **6**, 460. Enderlen and Hess: Deutsch. Ztschr. f. Chir., 1901, **59**, 240.

Vomiting is often severe in pregnancy and with some lesions of the pelvic organs. I refer here not to the so-called "toxemic" but to the "reflex" or "nervous" type of vomiting. I believe the uterus in some way influences and raises the tone, irritability and activity of the lower part of the bowel, so that there is a tendency to reverse peristalsis. The greater activity of the colon may be due to its sharing in the hyperemia of the pelvic organs.[23] It is conceivable also that there may be a spread of tone along the pelvic nerves. Elliott and Barclay Smith found that they could raise the tone of the midregion of the colon, and produce anastaltic waves by stimulating these nerves in animals.[24] This tendency to reverse peristalsis in pregnancy was well recognized by Campbell[25] who suggested that we utilize it in giving nutrient enemas in the vomiting of pregnancy. He felt sure that these enemas would be carried well up into the small intestine where they could be digested and absorbed. It is interesting that the ancients also recognized this tendency to anastalsis. The Brugsch papyrus advises, as a test for pregnancy, the giving of pounded watermelon in milk; if the woman has flatulence only and no vomiting, she is not pregnant.[26] Hippocrates used "hydromel" in much the same way.[27] It is not a bad idea that an irritant not sufficient to upset a normal tract might be able to reverse one that already was tending that way.

It seems to me that those who ascribe the vomiting of pregnancy to toxins derived from the fetus do not pay enough attention to the fact that exactly similar phenomena are seen in many women on the first day of menstruation, at the menopause and with some pelvic diseases, such as dragging displacements, fibroids and pus-tubes. There is a large literature on this subject, and the symptoms enumerated are those discussed in this article. They often disappear immediately after hysterectomy, ventrofixation, etc. I have seen similar disturbances in a few men with large prostates and distended bladders.[28] It does not do any good to call these troubles "reflex" when the path cannot be pointed out. Gaskell's research has absolutely demolished Robinson's idea that the solar plexus is an "abdominal brain" with reflex centers.[29] The stormy vomiting and dynamic ileus often seen after pelvic operations may be due to a great and sudden increase in the irritability of the colon. One may also explain in this way the severe gastro-intestinal upset seen sometimes after injury to the testis.[30]

REGURGITATION

Vomiting shades off into regurgitation in many cases.[31] People will taste certain foods all day; particularly fats, which tend to return from the bowel into the stomach.[32] Often in duodenal ulcer, gallbladder disease and chronic appendicitis there will be regurgitation of bile-stained fluid before breakfast. Some women regurgitate only at the beginning of the menstrual period. Troublesome regurgitation may cease a few minutes after the patient has a bowel movement. The distention of the pelvic colon may have been keeping that region overactive and causing it to give off reverse waves.[33] These waves need not be so powerful that they sweep material along before them. Some time ago, while recording the activities of seven different regions of the rabbit's intestine on the same drum, I found that short peristaltic rushes here and there were originating in ripples that were coming, unnoticed by the naked eye, all the way from the pylorus.[34] In the same way, I believe it probable that ripples coming from a full and overactive colon, or from the irritable ileocecal region in appendicitis, will run up the bowel and show themselves in the stomach and esophagus as waves of acid regurgitation. The objection may be raised that the connective tissue block at the pylorus which prevents the spread of gastric waves on to the duodenum will likewise prevent the upward spread of reversed waves. I think, however, that since my records from the cat's intestine show that ripples beginning in the duodenum generally coincided with, and probably were part of, waves arriving at the pylorus, it is quite possible that ripples going in the opposite direction can also pass the barrier.

The following case is very suggestive: A constipated infant regurgitated so much that her pillow was always soaked. After weeks of this her bowels suddenly became a little loose, and the day this occurred, the mother was surprised to find the pillow perfectly dry. It remained that way for over a week, until the bowels became constipated again. Apparently the establishment of a good current downward instantly

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21. The duodenum has been closed off in man so that all secretions had to go through the stomach on their way to the jejunum, and yet there was no trouble (Moynihan: Brit. Med. Jour., 1901, **1**, 1136). Chlumski performed similar operations on dogs without causing them to vomit (Beitr. z. klin. Chir., 1898, **20**, 519-523). Cholecystogastrostomy in man and dogs does not produce vomiting (Oddi: Confer. Clin. ital., Milan, 1897, **1**, 77). See also Kolbing: Beitr. f. klin. Chir., 1902, **33**, 518. Ledderhose: Arch. f. klin. Chir., 1899, **59**, 153. Wiedemann: Beitr. z. klin. Chir., 1914, **89**, 594. Rosenberg: Arch. f. d. ges. Physiol., 1898, **73**, 419.

22. Faulhaber and von Redwitz: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1914, **28**, 157. Cohnheim and Dreyfus produced vomiting in dogs by distending a balloon in the intestine. They found that a slowing of gastric motility could easily be effected by irritating the bowel, whereas it was not observed after the production of a severe gastritis. They point out that we must look more to the intestine for the cause of gastric disturbances (Ztschr. f. physiol. Chem., 1908, **58**, 56, 82).

23. Carnot and Glenard noticed while perfusing the excised intestine that its activity was greatly increased when the blood flow was more rapid (Compt. rend. Soc. de biol., 1912, **72**, 496, 661). An increased activity of the colon might account for the looseness of the bowels in many women during menstruation.

24. Elliott and Barclay Smith: Jour. Physiol., 1904, **31**, 282.

25. Campbell (Tr. Am. Gynec. Soc., 1878, p. 268) says that the woman with pregnancy or pelvic disease has an irritable tract in which "response is usually by inverted rather than by direct action: eructation, regurgitation, nausea, vomiting, constipation, far more frequently than diarrhea and other manifestations of downward action. The tract gets into the habit of retrostalsis."

26. Neuberger: History of Medicine, London, 1910, **1**, 29.

27. Hippocrates: Adams' Translation, New York, **2**, 242.

28. Herschell describes three cases of vomiting in men with retention of urine; two were cured by beginning the catheter life, the other by operation (Med. Press and Circ., 1905, **130**, 559). See also Hutchinson, Brit. Med. Jour., 1910, **1**, 485. Stockton: Diseases of the Stomach, New York, D. Appleton & Co., 1914, p. 129. Peyer: Samml. klin. Vortr., 1890, p. 3182. Austin: Diseases of the Digestive Tract, St. Louis, 1916, p. 52.

29. Gaskell: The Involutary Nervous System, London, 1916.

30. An inflamed hydrocele, contusion of the testicle, or operation for hemorrhoids may bring about the picture of acute ileus (Müller: Deutsch. Arch. f. klin. Med., 1912, **105**, 37).

31. Austin: Diseases of the Digestive Tract, St. Louis, 1916, p. 337. Cohnheim: Digestive Disorders, Translated by Fulton, Ed. 3, Philadelphia, J. B. Lippincott Company, 1914, p. 244. Valentin: Lehrbuch der Physiologie, 1847, **1**, 273. Paterson, in describing a case of chronic appendicitis, said: "Thirteen or fourteen years ago the patient began to suffer from 'risings in the stomach,' and seven years ago he began to suffer from attacks of vomiting" (Proc. Roy. Soc. Med., 1910, **3**, Surg Sect., p. 193).

32. Alvarez, W. C.: The Motor Functions of the Intestine from a New Point of View, The Journal A. M. A., July 31, 1915, p. 388, Notes 43 and 44.

33. Smith and Lewald say, "The frequency with which colic accompanies regurgitation is suggestive of their commoin origin." The waves causing regurgitation may arise in the overactive part of the intestine where there is colic (Am. Jour. Dis. Child, April, 1915, p. 271).

34. Alvarez, W. C.: Am. Jour. Physiol., 1915, **37**, 273.

stopped all regurgitation upward. The ancients not only gave purges to stop vomiting, but they stopped excessive purgation by giving emetics.[35]

HEARTBURN

Before giving my views as to what heartburn is, I must emphasize what it is not. A good many years ago I was surprised to find that only a small proportion of the patients complaining of sour stomach and heartburn have an actual increase in their total acidity and free hydrochloric acid. Titration of the burning fluid that was being regurgitated often showed subacidity, and gastric analyses made during periods of discomfort did not show values any higher than those made during periods of relief. A review of the literature showed that similar observations have been made by every writer who has done any work on the subject.[36] As far back as 1884, Reichmann[37] stated clearly that although it might be customary for laymen and physicians to ascribe heartburn to an increase in gastric acidity, such an increase could only occasionally be demonstrated.

This fact is not so surprising when we remember that almost all of those who have put from 0.5 to 2 per cent. hydrochloric acid into the human stomach by tube agree that the mucous membrane cannot sense it as pain or heartburn.[38] At most, there is a slight feeling of warmth. A number of writers assert that the diseased stomach is so hyperesthetic that it can feel the acid. Talma and his pupils found in a few cases with possible ulcer that the acid would cause pain, rarely burning.[39] This idea of a hyperesthetic mucous membrane has been discredited, however, by the work of Hurst,[40] Löwenthal[41] and Schür,[42] who showed that persons with ulcer, demonstrated later at operation, could not feel the acid any more than normal persons can. It might also be remarked that heartburn is not a common complaint with gastric ulcer. Recently the work of Ginsburg, Tumpowsky and Hamburger[43] indicates that pain felt by ulcer patients on the introduction of acid is due not to a direct irritation of the nerve-endings, but to powerful contractions set up by the acid. Some writers adopted the idea of "hyperaciditas larvata"—a hyperacidity which is present long enough to produce symptoms, but which disappears about the time the stomach tube is passed. Schmidt thought the persons with pain and heartburn must have lost a protecting layer of mucus over the gastric lining.

It seems to me that the true explanation is the one given by Reichmann[37] thirty-three years ago. He had people swallow a little gelatin-coated sponge on the end of a string. This was left for ten minutes in the esophagus just above the junction of the middle and lower thirds. It was found that the fluid expressed from the sponge was acid in the persons who had heartburn and alkaline in normal controls. He concluded, therefore, that heartburn is due to the regurgitation of more or less acid gastric juice through a relaxed cardia into the esophagus. This view has been held independently by a number of observers. Some doubt has been cast on it by the work of Hurst,[40] who states that the esophagus is not sensitive to acid. This seems strange in view of the fact that those who have experimented with acid have had to give it by stomach tube so as to avoid burning sensations in the pharynx and esophagus. The lower pharynx seems to be much more sensitive than the esophagus, and most persons feel the heartburn in the back of the throat.[44] Further work is needed before we know just where and how the acid causes burning. Some of my patients who take dilute hydrochloric acid complain of burning, others do not. I have experienced severe and typical heartburn after drinking "acidol"[45] in water. Some nervous women complain at times of a burning feeling in the epigastrium, as if the stomach were "on fire." This is probably an entirely different thing—a paresthesia which at times moves down over the right hip, showing that it has nothing to do with the stomach.

To my mind the most suggestive thing about true heartburn is its well known association with belching and regurgitation. Patients often say they feel the burning when the fluid comes up. Occasionally it is worse when the sufferer is lying down, perhaps because the gastric juice can then more easily run back up the esophagus. It is often brought on by eating fats which, as I have already pointed out, favor regurgitation. This may be due to the fact that they depress gastric activity while at the same time they stimulate the bowel. Many men suffer from heartburn after using tobacco. In habitués, some regurgitation of gastric juice probably represents the nausea and vomiting of the neophyte.

Many persons with heartburn are relieved by taking alkalis. These drugs may do good in two ways: first, by neutralizing the acid in the stomach, and secondly, by enabling the patient to belch so noisily and satisfactorily that he does not feel the need of doing it again for the rest of the day or night. When there is no regurgitation and belching, there is rarely any heartburn. The fact that many people with subacidity are relieved by soda shows that its virtues are not due entirely to its antiacid effect. I have seen a few persons who were made worse by alkalis and were immediately relieved by the administration of hydrochloric acid. I was led to try this by Cannon's[46] observation that an increase in gastric acidity closes the cardia

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[35] Paulus Aegineta: London, 1847, **3**, 489, 499. Hippocrates also recognized the possibilities of reversing the current. He says, "In confirmed diarrhea, vomiting, when it comes on spontaneously, removes the diarrhea" (Adams' Translation, New York, **2**, 252).

[36] Schütz made a careful study of 830 cases, and concluded that only a small percentage of people with hyperacidity have symptoms (Wien. med. Wchnschr., 1906, **56**, 2241-2410). See also Steele, J. D.: The Relation of Excessive Gastric Acidity to Gastric Symptoms, The Journal A. M. A., Aug. 18, 1906, p. 496. Stockton: Diseases of the Stomach, New York, D. Appleton & Co., 1914, p. 157. Palfrey: Am. Jour. Med. Sc., 1913, **145**, 796. Lockwood: Diseases of the Stomach, Philadelphia, Lea & Febiger, 1913, pp. 461, 465. Von Noorden: Ztschr. f. klin. Med., 1904, **53**, 2. Gross, M. H., and Held, I. W.: Ulcus Ventriculi, Arch. Int. Med., March, 1914, p. 445. Verhaegen: La cellule, 1897, **12**, 70. Illoway: Arch. f. Verdauungskr., 1902, **8**, 135. Blankenhorn, M. A.; Harmon, G. E., and Hanzlik, P. J.: Some Clinical Physiologic and Chemical Observations on Ptomain Poisoning from "Creamed" Codfish, Arch. Int. Med., January, 1916, p. 140. Kauffmann: Ztschr. f. klin. Med., 1905, **57**, 491; Arch. f. Verdauungskr., 1907, **13**, 622. Leube: Verhandl. d. Cong. f. inn. Med., 1884, **3**, 215.

[37] Reichmann: Berl. klin. Wchnschr., 1884, **21**, 769.

[38] Hertz: Proc. Roy. Soc. Med., 1910, **3**, Surg. Sect., p. 101. Carlson and Braafladt: Am. Jour. Physiol., 1914, **36**, 163. Ginsburg, Harry; Tumpowsky, Isidor, and Hamburger, W. W.: Contributions to the Physiology of the Stomach, XXX, The Newer Interpretation of the Gastric Pain in Chronic Ulcer, The Journal A. M. A., Sept. 30, 1916, p. 990. Zimmermann: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1909, **20**, 445. Löwenthal: Berl. klin. Wchnschr., 1892, **29**, 1188. Schür: Med. Klin., 1911, **7**, 919. Schmidt: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1908-1909, **19**, 278. Bönniger: Deutsch. med. Wchnschr., 1908, **45**, 396.

[39] Talma: Ztschr. f. klin. Med., 1884, **8**, 407.

[40] Hurst: The Sensibility of the Alimentary Canal, London, 1911, p. 12. (In a recent letter the doctor tells me he has changed his name from Hertz to Hurst.)

[41] Löwenthal (Note 38, fifth reference).

[42] Schür (Note 38, sixth reference).

[43] Ginsburg, Tumpowsky and Hamburger (Note 38, *third* reference).

[44] On numberless occasions I have seen barium-containing *milk* thrown quickly and forcibly back into the upper part of the esophagus. This seemed to be due to powerful contractions of the muscle near the cardia. It must be remembered that sensations derived from the esophagus between the clavicles and nipples may be referred either upward into the throat or downward to the epigastrium (Boring: Am. Jour. Psychol., 1915, **26**, 34).

[45] Hydrochloride of betain, which liberates hydrochloric acid in solution.

[46] Cannon: Am. Jour. Physiol., 1908, **23**, 105.

bowel.[52] A review of the literature on the vagus shows that this is not improbable. May[53] found the inhibitory effects more pronounced on the cardiac than on the pyloric end of the stomach. Stimulation of the vagus has produced regurgitation of intestinal contents into the stomach and even vomiting.[54] Very similarly, in the heart of the frog or turtle, vagal stimulation tends to reverse the impulse because it depresses the sinus and leaves the auriculoventricular region active. This is more likely to occur in hearts which have been experimented with awhile and in which the sinus region has become disproportionately fatigued.[55]

Some people experience nausea when constipated, and are relieved immediately after emptying the rectum. Nausea may be associated with diarrhea also, if the bowel is trying to clear itself both ways from some irritated region. It is very common to see nausea produced by cleansing enemas. In one of my patients this occurs only if the enema is made irritating by the addition of much salt or soap. Incidentally, Nothnagel and others[56] have shown that the addition of salt to liquids injected into the bowel will cause them to travel much farther up the tract. It is interesting that the ancients gave hellebore by mouth to purge and by rectum to produce vomiting.

COATED TONGUE AND FOUL BREATH

It is commonly supposed that the tongue, in some sympathetic way, reflects the condition of the gastric mucous membrane. I can find no proof of any kind for these views. They seem to be based on the idea, unfortunately still too prevalent, that most gastro-intestinal upsets are due to a gastritis. Recent, more exact necropsy studies, and the examination of tissues secured at operations have failed to reveal the expected changes.[57] Inflammatory changes were strikingly absent even in the stomachs of a series of alcoholics dying in delirium tremens.[58]

It seems to me that by far the best explanation of the coated tongue has been given by Kast.[59] He gave lycopodium powder in sealed capsules to a number of persons, and was able to recover the typical spores in the mouths of most of them the next morning. I have repeated these experiments, and have found no difficulty in confirming them. In one case, of a woman who regurgitates a good deal, particularly during the menstrual period, the tongue's coat became yellow from the lycopodium.

It is possible that the particles on the tongue may come from even below the stomach. Grützner and others[60] have shown in animals and in man that lycopodium spores or other finely divided and easily recognizable material, given in enemas, will travel in a few hours from the rectum to the stomach. Closely corresponding to these experiments are those of Uffenheimer, Dieterlen and others,[61] who found that tubercle and prodigiosus bacilli injected by rectum could be recovered from the pharynx a few hours afterward, when every precaution had been taken to prevent the animals from licking themselves anywhere or touching their feces. Transmission through the blood stream was also fairly well ruled out.

Laymen and physicians often hold the view that the bad breath associated with "biliousness," a coated tongue, a "dark brown taste" and constipation is due to the exhalation of absorbed toxins. The experiments previously quoted show that the foul breath may just as easily be due to the presence of actual colonic material on the back of the tongue. If these reverse currents are so strong in apparently normal persons, it would not be surprising if they were stronger in the diseased. It goes without saying that these reverse currents must not be blamed for the coated tongue or foul breath in any particular case, until other possible causes in nose, mouth and pharynx have been ruled out.

GLOBUS

Some of us have been unfortunate enough to swallow while a wave or regurgitation was coming up, and we have felt a painful, tearing feeling as the two waves met. It seems to me that this may be the mechanism of globus.[62] Some persons describe it as a wave ascending or descending along the esophagus. It is suggestive that the hysterical, who are supposd to suffer most from globus, often exhibit the most pronounced symptoms of intestinal antiperistalsis.

A FEELING OF FULNESS AFTER TAKING A FEW MOUTHFULS OF FOOD

In rare cases this will be due to shrinkage of the stomach, brought about by extensive carcinoma or ulcer. Ordinarily, persons with this symptom will be found to have large or even baggy stomachs. Carlson's experiments agree with those previously reported in showing that the sensation of fulness does not originate in the gastric mucosa.[63] Leven and Barrett[64] have commented on the fact that persons who wake in the morning with the feeling that their dinner has not passed on really have empty stomachs, as shown by the roentgen ray. Similarly, Hurst[65] has found empty stomachs when the patients were sure that they were filled with gas. He found some patients with gastro-enterostomy who complained of a feeling of fulness if their stomachs emptied too rapidly into the bowel. Similar distress is caused by feeding too rapidly through a jejunal fistula.

This complaint of fulness is common with chronic appendicitis, in which it is often associated with other signs of back-pressure. Just as the taking of a little food causes the terminal ileum to empty into the cecum, a failure of this emptying to take place may delay the emptying of the stomach and duodenum, and may, I believe, cause this feeling of fulness.[66]

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[52] It is not generally known that large branches of the vagus go directly to the upper part of the jejunum (Alvarez, W. C.: Am. Jour. Physiol., 1915, **37**, 276. Mackenzie: Proc. Roy. Soc., 1915, **9**, Electrother. Sect., p. 7; Jour. Anat. and Physiol., 1917, **51**, 287. Gaskell [Note 29]).

[53] May: Jour. Physiol., 1904, **31**, 264.

[54] Heidenhain: Hermann's Handbuch der Physiologie, 1887, **5**, 1. Meyer: Ibid., **5**, 444. Miller: Jour. Physiol., 1911, **41**, 409.

[55] Gault: Am. Jour. Physiol., 1917, **43**, 22-41. Drugs which act on vagus endings or ganglion cells are most effective in the sinus region (Flack: Jour. Physiol., 1910, **41**, 64).

[56] Nothnagel: Beitr. z. Physiol. u. Path. d. Darmes, 1884, 20. Cannon: Mechanical Factors of Digestion, London, 1911, p. 150. Rolleston and Jex-Blake: Brit. Med. Jour., 1903, **2**, 68.

[57] Beitzke: Verhandl. d. deutsch. path. Gesellsch., 1914, **17**, 433.

[58] Hirsch, E. F.: The Gastric Mucosa in Delirium Tremens, Arch. Int. Med., March, 1916, p. 354.

[59] Kast: Berl. klin. Wchnschr., 1906, **43**, 947.

[60] Grützner: Deutsch. med. Wchnschr., 1894, **20**, 896. Swiezynski: Deutsch. med. Wchnschr., 1895, **21**, 514. Reach: Prag. med. Wchnschr., 1902, **27**, 549. Bernheim, Albert: Movements of Intestines, The Journal A. M. A., Feb. 16, 1901, p. 429. Hemmeter: Arch. f. Verdauungskr., 1902, **8**, 59. Hemmeter believes the particles travel along the mucous membrane of the intestine. Part of this retrograde transport might be due to the movements of the villi recently described by Hambleton. It might be similar to the cleansing activities of the cilia in the bronchi (Hambleton: Am. Jour. Physiol., 1914, **34**, 446. Brinton: Cyclopedia of Anatomy and Physiology, 1859, **5**, 354).

[61] Uffenheimer: Deutsch. med. Wchnschr., 1906, **32**, 1853. Dieterlen: Centralbl. f. Bakteriol., Part 1, Orig., 1907, **45**, 385. Meyer, Karl: Personal communication to the author.

[62] Marshall Hall likened globus to colic, produced by conflicting waves distending the intestine between them (Lancet, London, 1857, **1**, 82). The ancients thought it was due to a wandering of the uterus up into the neck (Neuberger: History of Medicine, London, 1910, **1**, 106).

[63] Carlson: The Control of Hunger in Health and Disease, Chicago, 1916, p. 111.

[64] Leven and Barrett: Arch. d. mal. d. l'app. digestif., 1907, **1**, 142.

[65] Hurst: The Sensibility of the Alimentary Canal, London, 1911, pp. 22, 28.

BILIOUSNESS

It is well known by thinking physicians today that we have no reason for ascribing this syndrome to hepatic insufficiency. It has probably derived its name from the fact that these persons often find bile in regurgitated or vomited material. It has already been pointed out that the presence of a certain amount of bile in the stomach is normal, and any excess would not indicate disease of the liver so much as an increase in reverse peristalsis. Persons who get severe "bilious" attacks with vomiting, nausea, regurgitation of bile, coated tongue, headache, etc., will, I think, be found ordinarily to have a chronic appendicitis. Their symptoms are really those of reversed intestinal activity.

The relief that these persons may derive from a dose of calomel is not due to any action on the liver,[67] but, I believe, to a restoration of the normal currents down the tract. In milder cases, the back-pressure may be due to constipation—the current cannot go forward, so it tends to be reversed. It seems to me that a laxative brings instant relief, not by clearing out toxins, but by removing the material which was obstructing and irritating the colon.

CONCLUSION

An attempt has been made to explain a number of gastro-intestinal symptoms in the light of recently acquired physiologic knowledge. I believe that the underlying cause of all of them is a reversal of the currents in the tract. Thus, vomiting is often due to reverse peristalsis in the intestine; regurgitation is a mild form of vomiting; heartburn is due to the regurgitation of gastric juice into the upper esophagus; belching is closely akin to regurgitation; nausea is probably one of the ways in which we perceive reverse peristalsis; "biliousness" is the common name for the reverse peristalsis syndrome; a coated tongue and foul breath are often the results of regurgitation; globus is due to reverse waves in the esophagus, and the feeling of fulness after taking a few mouthfuls is often due to back-pressure in the intestine.

Those who may feel that I have appropriated nearly all of the gastro-intestinal symptoms for this syndrome are asked to remember that if, as seems likely, symptoms are produced almost entirely by disturbances in the motor functions, we should be most conscious of, and most annoyed by, the severest possible form of such disturbance, namely, a reversal of the current.

The question may also be asked, If reverse peristalsis is so common, why do we not see more of it with the roentgen ray? Moreover, how can signs of reverse peristalsis appear from time to time during the progress of digestion, when food is actually going down the tract? First, it must be remembered that most of the disturbances are due probably to ripples coming up the tract. Any oarsman knows that a wave will not carry his boat more than a few feet unless he is very near a shelving beach. My records have shown that ripples can come down the intestine long distances without forwarding the contents, and can then break into strong waves which rush material along before them. I see no reason why similar ripples cannot travel upward in the wall of the bowel until they show themselves as waves in the stomach and esophagus. When the gradient of forces in the tract is poor, waves can probably travel in either direction. When the stomach is full and active, it will be easier for waves to proceed aborally; when the stomach and small intestine are empty and the colon is full, the waves will more easily ascend. Moreover, animal experiments indicate that the gradient may not be upset to the same extent in all parts of the tract, so that, for instance, reverse waves might be present in the stomach, and normal ones in the bowel. Similarly, the heart that is beating with nodal rhythm sends the blood in the proper direction, although the ventricles are contracting before the auricles. It is conceivable that ripples can ascend the digestive tract even when the gradient is not reversed. To explain what I mean, I will point to the case of a large river like the Missouri, which undermines its banks in places until tons of earth tumble in. In the lower stretches of the river, where the current is not rapid, such a commotion might cause ripples to run a quarter of a mile uphill, and over water flowing in the opposite direction.

Another reason why we cannot expect to see much reverse peristalsis with the roentgen ray is that even normally we cannot follow the food in the small intestine after it leaves the duodenum, and before it reaches the terminal ileum. Actual reverse transport of material has been observed in those parts of the tract which are accessible to roentgenographic study. Twice I have seen definite reverse peristalsis in stomachs free from organic disease. Subsequent operation revealed the cause to be, in one, appendicitis, in the other, duodenal ulcer. More important than visible reverse waves are the reversed impulses that hold back the barium here and there in the tract, in spite of the fact that the muscle is active, and the tube ahead is unobstructed. These are the conditions we see every day.

Many physicians today are satisfied when they have appropriately labeled each case as a "gastritis," a "hyperacidity" or a "biliousness." Their work then ends, as each label carries with it a certain string of prescriptions and, perhaps, a diet. I believe that this paper will have been well worth writing if it helps at all in making men dissatisfied with some accepted ideas, and more inclined to think in terms of disturbed physiology. Such thinking must make for better therapeutics. The physician will more often seek for and find the lesion that is irritating the bowel and giving off the reverse waves. More often, also, will he see the hopelessness of medical "tinkering," and will call in the surgeon at once. If such radical treatment is inadvisable or impossible, he will use a smooth, cellulose-poor diet, which will flow more easily along the impaired gradient. He may, perhaps, be able to improve the gradient by resting and overfeeding the patient. Later, when the pharmacologist gets to thinking along these lines, he may find for us drugs which will restore the downward currents, either by increasing the activity of the upper part of the tract or by decreasing the activity of the lower parts. I hope soon to publish the report of work indicating that some laxatives do alter the gradient in these ways.

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[66] Alvarez, W. C.: The Motor Functions of the Intestine from a New Point of View, The Journal A. M. A., July 31, 1915, p. 388, Note 66.

[67] All pharmacologists agree that calomel is not a cholagogue.

THE TREATMENT OF LEUKORRHEA WITH LACTIC ACID BACILLI *

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It is our purpose to give a brief summary of the experiences that we have had in the treatment of leukorrhea by means of the local application of lactic acid bacilli. Our work has extended over a period of two years, which we regard as a sufficient length of time thoroughly to digest our results, and separate the wheat from the chaff of overenthusiasm. Much has previously been done by other investigators in the search for a cure in obstinate cases of leukorrhea, and although we shall not quote the work of others, we gladly give credit and priority wherever it may be due.

Normally, in the healthy adult virgin, the reaction of the viginal secretion is acid, as a result of the activity of the bacillus of Doederlein. In the patient who is suffering from chronic leukorrhea, however, with the exception of one type, of which we shall speak later, the reaction of the vaginal secretion is distinctly alkaline. After observing these facts in a large series of cases, we formulated the theory that if we could change the reaction of the vagina from alkaline to acid, and maintain an acid reaction, we might be able to control or, perhaps, cure the leukorrhea.

The use of chemicals, drugs and douches was immediately discarded from our work, for the reason that previous experience had shown them to be but ephemeral in effect, and utterly inadequate, so far as anything like a lasting result is concerned. Believing that the alkaline reaction of the vagina in cases of leukorrhea was due to the activity of saprophytic bacteria, which in their proliferation completely killed the normally present Doederlein bacilli, we felt that if we implanted into the vagina a nonpathogenic, acid-forming organism, we could overgrow these saprophytic organisms, and our problem would be solved. At this point let us state that, although our results have been encouraging in many ways, the problem proved to be entirely different when put to a practical test.

Although many organisms might have been used in this work, we selected the Bulgarian lactic acid bacillus because of its accessibility, and also on account of the enthusiastic reports of its use in intestinal saprophytic conditions. Through the kindness of two pharmaceutical laboratories, we were supplied with tablets of lactic acid bacilli and bouillon cultures of the same organism. These, together with a stock culture obtained from the William Pepper Clinical Laboratory of the University Hospital, constituted the source of our supply.

In the beginning of our work we gave all the organisms an equal trial, and found that the best results were to be obtained from the use of bouillon cultures, provided the culture was reasonably fresh. As a practical measure, however, we soon learned that the use of cultures was out of the question, on account of the difficulty of always having a fresh culture on hand. In contradistinction to this drawback in the use of cultures, we found that the organisms compressed in tablet form with lactose were reasonably active and potent over periods of many weeks, provided the simple precaution of keeping the tablets on ice was observed. To satisfy ourselves that this was the case, we had several of the tablets from one laboratory cultivated and obtained living organisms. Without going into unnecessary detail regarding the various methods of application that we have employed in the development of our work, we shall, at present, merely describe the technic we employ, and then summarize the results obtained in the various types of cases treated.

TECHNIC

The patient is placed in the usual dorsal gynecologic position, and a thorough pelvic examination made, including smears, when indicated. A bivalve speculum is then inserted into the vagina, and the cervix and the upper vaginal canal exposed. The reaction of the vagina is then taken by moistening a piece of litmus paper in the vaginal secretion, after which the vagina is thoroughly cleansed of mucus and leukorrheal discharges by means of a simple alkaline spray, and the vagina is then dried with cotton pledgets. A lactic acid tablet, perferably one that is readily soluble and made with a lactose base, is placed in a medicine glass and moistened with *one or two drops* of sterile water dropped on the tablet by means of a small pipet or eye-dropper. It is important not to supply more than a very few drops of water to the tablet; otherwise the tablet will completely disintegrate and cannot be readily handled.

If the proper kind of tablet is used, and only enough water is applied to moisten it, it will attain the consistency of thick cottage cheese, and may be readily lifted in toto by a pair of forceps. It is then placed in the upper vaginal canal, and spread over the walls and on the cervix by means of the forceps. If the tablet is of the proper consistency, it will adhere to the vaginal mucosa wherever placed, and will show no tendency to run out of the vagina, as is the case with ordinary solutions. The speculum is next withdrawn half way, with its blades open, to allow the upper vaginal canal to close over the tablet that has been applied. Finally the blades are closed and the instrument is withdrawn. No tampons are applied. The patient is instructed to return in a week, and all douching is absolutely interdicted. On her return, the same technic is repeated, and she returns once a week for a reimplantation of the bacilli, until the vagina is acid—a result which in a favorable case is attained in about three or four weeks. After the reaction has become acid, no treatment is given so long as it remains so, although the patient returns at gradually increasing intervals to have the reaction taken. In favorable cases it is usually found necessary to reimplant organisms at intervals of from three to four weeks, since, after that time, the organisms seem to die, or at any rate to lose their potency. We might, therefore, state here that the treatment is seldom a permanent cure but rather a good palliative measure, requiring attention about once a month and superseding douches.

TYPES OF CASES TREATED, AND RESULTS

The cases that we have subjected to this treatment might be conveniently classified in the following groups, which we shall consider separately: vulvovaginitis of children, specific and nonspecific; endocervicitis, both simple and gonorrheal, and senile vaginitis, natural and artificial.

In the treatment of vulvovaginitis in children this method is of little avail as long as gonococci are apparently present. When, however, the gonococci have largely disappeared, the use of the lactic acid bacilli seems to be of some value in reducing the discharge and in lessening the vaginal irritation. In many cases, however, the symptoms will return on the cessation of the treatment. In the nonspecific types of vaginitis in children, the results are more encouraging and in a good percentage of the cases treated, we believe that a cure has been established. As some difficulty is often encountered in the introduction of the bacilli into the vagina of children, we have of late introduced the dry tablet into the vagina, and then injected a few drops of water, thus allowing the tablet to dissolve inside the patient. An interesting point we have noted in connection with our work with children is the fact that, before the onset of menstruation, the reaction of the child's vagina is almost constantly alkaline, whether or not disease is present; and it was with considerable difficulty that we obtained an acid reaction in some of these cases.

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In the consideration of leukorrheal discharges during the childbearing period, we wish to call attention to the fact that our results were practically nil in cases in which there was a gross pelvic pathologic condition. Similarly, we have nothing encouraging to offer in the treatment of gonorrheal endocervicitis, or when cervical erosion, laceration, or another evident pathologic condition is the cause of the leukorrhea. Such conditions must be treated along the usual lines before any attempt is made to apply the lactic acid treatment. After the exclusion of such cases as we have mentioned, there will be a large number of cases in which the leukorrheal discharge is the chief symptom, and in which no definite disease can be determined. Cases of this type we have classified under the heading of nonspecific catarrhal endocervitis. They will almost uniformly present an alkaline reaction in the vagina, and, in approximately 50 per cent. of the cases, will respond to the treatment we have suggested.

Finally, we come to the consideration of senile or atrophic vaginitis, that most distressing condition which occurs in women past the menopause, characterized by a thin, yellow, malodorous, irritating discharge, and accompanied by intense itching of the genitalia, and sometimes by urinary frequency and burning. The cause of this syndrome is the lack of ovarian internal secretion, due either to natural atrophy of the glands at the time of the normal menopause, or else to their surgical removal. It is in this type of case especially that we have had our best results, and the strange fact is that these cases always show an acid reaction of the vaginal secretions. But, notwithstanding this fact, the application of lactic acid bacilli gives prompt relief, which we have interpreted as being due to the overgrowth of acid-forming saprophytes by the less irritating lactic acid bacilli.

These patients, as a rule, have no relief from douches, or local applications of the usual remedies, and wander from one dispensary to another in search of a cure. Their plight is distressing, and as most of them have been treated by many other physicians before coming into our hands, we feel particularly gratified with the results we have obtained. It must be distinctly understood, however, that we do not claim to have obtained a permanent cure in any of these cases, although we do know that many of them have gone several months without treatment and without symptoms. In the average case, it is necessary to implant the bacilli at monthly intervals, with perhaps a few months' intermission occasionally. While we shall not give actual figures, we believe that 80 per cent. of our cases of senile vaginitis, whether following the natural or the artificial menopause, have responded to this treatment.

CONCLUSION

We wish to state that this work is offered merely for what it may be worth, and we feel that in selected cases it will constitute a most effectual palliative treatment, being particularly acceptable to the patient on account of the cleanliness and convenience that are consistent with its proper execution.

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THE ALKALI RESERVE IN THE BLOOD OF PELLAGRINS *

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The incidence of pellagra in the Southern States has increased rapidly during the past ten years, but in spite of the advances which have been made in prophylaxis and in treatment, its etiology is still in doubt.

Various views have been advanced by investigators to explain the etiology of pellagra. These views may be divided into two classes: those which deal with it as a communicable disease, and those which consider it to be due to an unbalanced diet. Numerous organisms have been described as the etiologic agent, but sufficient proof has not yet been offered to justify us in accepting any of them. Two conceptions have been advanced by those who believe pellagra is caused by an unbalanced diet. One group of observers believes it is due to the lack of some essential substance in the diet, while the other considers it an intoxication due to the excessive use of some particular kind of food.

It has also been suggested that the disease may be caused by a change in the alkali reserve of the body. Thus, Fairbanks[1] says pellagra is caused by an acidosis resulting principally from phosphoric acid and purins in the blood, though he does not mention the particular kind of food which is responsible. Carmichel,[2] on the other hand, advocates the theory that pellagra is due to an increase in the alkalinity of the blood caused by the excessive ingestion of fruits and vegetables. It is, of course, well known that certain foods used in large amounts may cause a change in the alkali reserve of the body.

In view of these statements, we decided to report at this time the results obtained in a study of the alkali reserve in the blood of pellagrins.

The study was made with a series of thirty-six patients, including fatal cases, acute cases in which there was subsequent recovery, and chronic cases in which the patients were suffering from recurrences. Van Slyke's[3] method of estimating the carbon dioxid combining power of the blood plasma was used. The results are given in the accompanying tables.

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[1] Fairbanks: Texas State Med. Jour., 1916, **21**, 170.

[2] Carmichel: Paper read before Tennessee Medical Association, April, 1917.

[3] Van Slyke: Jour. Biol. Chem., 1917, **30**, 347.

By reference to Table 1, it will be seen that all acute cases except Case 31 came within the normal limit, the average of the acute cases being 61.63 volume per cent. carbon dioxid. The five fatal cases (Cases 14, 16, 20, 31 and 32) averaged 58.6 volume per cent. The chronic cases (Table 2) give an average lower than the acute, though it is well within the normal. The average value of all cases is 59.45 volume per cent. The values for the males and females did not differ.

TABLE 1.—RESULTS IN ACUTE CASES

Case No. and Age	Color and Sex*	Carbon Dioxid Volume, Per Cent.
2—55	W—♀	66.0
3—27	W—♀	67.0
4—47	W—♀	67.0
5—16	W—♀	56.0
6—14	W—♀	59.5
7—10	W—♂	64.3
11—23	W—♀	68.0
12—56	W—♂	66.2
13—77	W—♀	64.3
14—70	W—♀	69.1
15—32	W—♀	67.1
16—30	W—♀	63.4
17—56	W—♂	65.5
18—25	W—♀	54.0
20—44	C—♀	57.9
27—36	W—♀	55.0
29—22	W—♀	57.0
31—41	C—♀	52.0
32—29	C—♀	60.0
34—40	W—♀	53.4

Average of 20 acute cases 61.63

* In the tables, ♂ indicates male and ♀ female.

The averages for the children are somewhat less than those for the adults. Most of the patients were seen at the Davidson County Pellagra Hospital, where the diet was well balanced, though high in proteins. The blood was taken from a number of the patients immediately after admission to the hospital and again at a later date. Thus we found that the change in diet and environment did not perceptibly alter the alkali reserve of the blood.

Viscosity determinations were made on the blood of seventeen patients. Traube's stalagmometer was used.

TABLE 2.—RESULTS IN CHRONIC CASES

Case No. and Age	Color and Sex	Carbon Dioxid Volume, Per Cent.
1—50	W—♂	57.0
8—65	W—♂	59.5
9—60	C—♂	67.2
10—45	W—♂	72.0
19—62	W—♂	53.0
21—12	W—♂	52.6
22—39	W—♀	58.8
23—67	W—♂	54.3
24—68	W—♂	55.4
25—55	W—♀	54.8
26—12	W—♀	56.9
28—39	W—♀	54.0
30—69	W—♂	54.0
33—68	W—♂	54.9
35—28	C—♀	56.0
36—49	W—♀	58.0

Average of 16 chronic cases 57.27

The tube was graduated so that at 20 C. (68 F.) 20 drops of alcohol would pass through in one minute. The blood was obtained by venipuncture and drawn into a sterile, dry tube. It was immediately transferred to a centrifuge tube containing dry potassium oxalate crystals in sufficient quantity to make a 1 per cent. solution. The blood was then centrifuged for fifteen minutes in a high power centrifuge, which effectively threw down all cells and platelets, leaving a clear, colorless plasma. The number of drops passing through Traube's stalagmometer in six minutes was determined, and the average for one minute taken. We found the blood from the seventeen pellagrins to be less viscid than that from twelve normal individuals. As the difference was not great, however, we do not care to make any deductions from it.

CONCLUSIONS

The alkali reserve of the blood in pellagra does not vary from normal in either the acute or the chronic cases; therefore there is no acidosis or alkalosis in pellagra.

The viscosity of the blood shows a slight variation from normal.

THE MECHANISM AND SIGNIFICANCE OF THE GUM MASTIC TEST *

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In 1915, Emanuel[1] announced a new colloidal reaction in the spinal fluid. He used gum mastic, a reagent which was very easily prepared. Of thirty tests made in psychiatric patients, there occurred complete precipitation in all the tubes in fourteen syphilitic cases (paresis, tabes and cerebrospinal syphilis). Cutting,[2] using a slightly modified technic, examined the spinal fluid of 200 psychiatric patients. Only the syphilitic patients gave positive results, but the number of tubes in which complete precipitation occurred varied. Lowrey[3] obtained varying degrees of precipitation in twenty different paretic fluids, as well as a few positive results in nonsyphilitic patients.

The present study was undertaken to determine whether different "curves" occurred in cerebrospinal syphilis, tabes dorsalis and paresis, but owing to the apparently irregular results, was extended to determine, if possible, the mechanism of the gum mastic reaction, as well as the examination of syphilitic and nonsyphilitic spinal fluids. Cutting's technic[2] was used. Briefly it is as follows: A solution of gum mastic is suspended in alcohol and distilled water. This is the reagent. It is precipitated by 1.25 per cent. sodium chlorid, but if a small amount of potassium carbonate is added, there is no precipitate unless protein, certain salts in certain concentration, or a pathologic spinal fluid is also added. In the test, therefore, the reagent, the spinal fluid in various dilutions, and the sodium chlorid and potassium carbonate are mixed. The gum mastic reagent is a pearly translucent fluid. With pathologic spinal fluids, or other substances which alter the mastic reagent, the following changes may occur: (1) loss of translucency without any distinct precipitate; (2) varying degrees of precipitation, without any clear supernatant fluid; (3) large amount of precipitation, with partly or entirely clear supernatant fluid. In the tables, therefore, "clear" refers to a maximum amount of precipitation.

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* From the McManes Laboratory of Experimental Pathology, University of Pennsylvania School of Medicine.

[1] Emanuel G.: Eine neue Reaktion zur Untersuchung des Liquor cerebrospinalis, Berl. klin. Wchnschr., 1915, **52**, 781-804; abstr., The Journal A. M. A., Sept. 4, 1915, p. 908.

[2] Cutting, J. A.: A New Mastic Test for the Spinal Fluid, The Journal A. M. A., June 16, 1917, pp. 1810-1812.

[3] Lowrey, L. G.: Mastiche and Potassium Permanganate Tests Applied to Cerebrospinal Fluid of Insane, Boston Med. and Surg. Jour., 1917, **177**, 115; abstr., The Journal A. M. A., Aug. 11, 1917, p. 482.

The following experiments were performed:

1. Various dilutions of normal blood serum in physiologic sodium chlorid solution (from 0.3 to 16 per cent. blood serum) yields at once the important fact that a given percentage of blood serum always caused the same degree of precipitation of mastic. This is shown in Table 1. For example, the fourth tube of a 10 per cent. solution of blood serum, containing 0.31 per cent. serum, gives a "clear" reaction. The third tube of a 5 per cent. solution of blood serum, containing a similar percentage of serum, gives a similar result. Moreover, an examination of this table shows that a certain optimum percentage of serum is necessary to cause a maximum precipitation ("clear"). Above this optimum amount of serum, the amount of precipitation is in inverse proportion to the amount of serum present, and below the optimum, the amount of precipitation is in direct proportion to the amount of serum present. From this it follows that, according to the amount of serum present, three types of reactions will be obtained: With large amounts of protein, the end tubes of the series will contain the most precipitate or be clear; with intermediate amounts of proteins (in which the optimum reaction usually occurs) the middle tubes will contain the most precipitate or be clear; with low amounts of proteins, the beginning tubes will contain the most precipitate or be clear. (The amount of protein must not be too large or too small to cause no precipitation.) An example follows: With 10 per cent. blood serum, Tubes 4 and 5 were clear, and Tubes 1, 2 and 3 contained precipitate but no clear supernatant fluid; with 2.5 per cent. blood serum, Tubes 2, 3 and 4 were clear, and Tubes 1 and 5 were not entirely clear; with 0.6 per cent. blood serum, Tubes 1 and 2 were clear, 3 was almost clear, and Tubes 4 and 5 contained precipitate, but no clear supernatant fluid. Sodium chlorid in solution, in amounts equal to that used in the dilutions of blood serum, caused no change in the mastic reagent.

TABLE 1.—RESULTS OF EXPERIMENTS *

Percentage of Blood Serum	Percentage of Blood Serum in Each Tube									
10	2.5 ppt ++	1.25 ppt +++	0.62 partly clear	0.31 clear	0.15 clear					
5	....	1.25 ppt +++	0.62 partly clear	0.31 clear	0.15 clear	0.07 clear				
2.5	....	....	0.62 partly clear	0.31 clear	0.15 clear	0.07 clear	0.03 almost clear			
1.25	....	....	....	0.31 clear	0.15 clear	0.07 clear	0.03 almost clear	0.019 ppt ++		
0.625	....	....	....	....	0.15 clear	0.07 clear	0.03 almost clear	0.019 ppt ++	0.009 almost no precipitate	
0.3125	....	....	....	....	....	0.07 clear	0.03 almost clear	0.019 ppt ++	0.009 almost no precipitate	0.004 loss of translucence
16	4 ppt +	2 ppt ++	1 ppt +++	0.5 partly clear	0.25 clear					
8	......	2 ppt ++	1 ppt +++	0.5 partly clear	0.25 clear	0.12 clear				
4	....	....	1 ppt +++	0.5 partly clear	0.25 clear	0.12 clear	0.06 clear			
2	....	....	....	0.5 partly clear	0.25 clear	0.12 clear	0.06 clear	0.03 almost clear		

* It will be noted that with certain optimum percentages of protein a maximum precipitate is obtained. The types of reactions therefore fall into three groups: Type 1, large quantity of protein, in which the end tubes contain the most precipitate or are clear; Type 2, intermediate quantity of protein, in which all the tubes are clear, or in which the middle tubes are clear or contain the most precipitate; Type 3, small quantity of protein, in which the beginning tubes contain the most precipitate or are clear. Ppt, precipitate; clear, maximum precipitate, with therefore clear supernatant fluid.

TABLE 2.—TYPE 1, LOWEST AMOUNT OF PROTEIN, MOST PRECIPITATE IN BEGINNING TUBES

Colloidal Gold Reaction	Diagnosis	Mastic Reaction	Globulin Percentage	Wassermann Reaction
	Blood serum, 0.3%	Tube 1, clear; 2, almost clear; decreasing precipitate in other tubes	From 0.2 to 0.6 Blood serum, 0.3%	
5555552100	Tabes dorsalis 1	None clear; decreasing precipitate toward end tubes.	Tabes dorsalis 1	Weakly positive
5555531000	Paresis 3	None clear; decreasing precipitate toward end tubes.	Paresis 3	Positive
4-4-4-2+200000	Poliomyelitis 2	None clear; decreasing precipitate toward end tubes.	Poliomyelitis 2	Negative
5-5-5-2+2-00000	Poliomyelitis 1	Tube 1, almost clear; decreasing precipitate in other tubes	Poliomyelitis 1	Weakly positive
	Blood serum, 0.6%	Tubes 1, 2, clear; 3, almost clear; decreasing precipitate in other tubes	Blood serum, 0.6%	
5555521000	Paresis 4	Tubes 1, 2, clear; decreasing precipitate in other tubes	Paresis 4	Positive
	Blood serum, 1.25%	Tubes 1, 2, 3, clear; 4, almost clear	From 0.6 to 1.6 Blood serum, 1.25%	
5555520000	Paresis 1	Tubes 1, 2, 3, clear; 4, 5, somewhat clear	Paresis 1	Positive
5555542000	Paresis 5	Tubes 1, 2, 3, 4, clear; 5, almost clear	Paresis 5	Positive

2. Spinal fluids from various pathologic sources were tested with the mastic reagent. At the same time the globulin percentage of these spinal fluids was estimated in the following manner: The protein in 0.2 c.c. of various known dilutions of blood serum was precipitated by Noguchi's butyric acid method and allowed to settle a sufficient length of time (or centrifuged). These tubes were used as standards. The amount of protein precipitated by Noguchi's method in 0.2 c.c.

of spinal fluid and allowed to settle an equal length of time as in the standard tubes was compared with the amount in the latter. This was a crude method, but the readings were satisfactory for the purposes of this study. In addition to the mastic and globulin tests, a Wassermann reaction, a colloidal gold reaction[4] and a cell count were performed on each fluid. The following fluids were tested:

(*a*) Cerebrospinal meningitis, six fluids. In these the meningococci were demonstrated; the Wassermann reaction was anticomplementary in five, and negative in the remaining fluid.

(*b*) Poliomyelitis, two fluids. These were doubtful cases; the Wassermann reaction in one case was negative, in the other weakly positive; the colloidal gold readings were atypical of poliomyelitis.

TABLE 3.—TYPE 2, INTERMEDIATE AMOUNT OF PROTEIN, MOST PRECIPITATE IN MIDDLE TUBES

Colloidal Gold Reaction	Diagnosis	Mastic Reaction	Globulin Percentage	Wassermann Reaction
	Blood serum, 2%	Tubes 2, 3, 4, clear; 1, 5, not entirely clear	From 1.6 to 2.5 Blood serum, 2%	
5555542100	Cerebrospinal syphilis 4	Tubes 2, 3, clear; 1, 4, not entirely clear	Cerebrospinal syphilis 4	Positive
5555411000	Cerebrospinal syphilis 1	Tubes 2, 3, clear; 4, not entirely clear	Cerebrospinal syphilis 1	Positive
00014-4-1000	Cerebrospinal meningitis 2	Tubes 3, 4, clear; 2, 5, not entirely clear	Cerebrospinal meningitis 2	Negative
0001244200	Cerebrospinal meningitis 7	Tubes 2, 3, 4, clear; 1, 5, not entirely clear	Cerebrospinal meningitis 7	Anticomplementary
5555541100	Paresis 2	Tube 3, clear; 2, 4, not entirely clear	Paresis 2	Positive
00013-3-1000	Cerebrospinal meningitis 5	Tubes 2, 3, clear; 1, 5, not entirely clear	Cerebrospinal meningitis 5	Anticomplementary
5555542100	Tabes dorsalis 2	Tubes 2, 3, clear; 1, 4, not entirely clear	Tabes dorsalis 2	Positive
5555542100	Paresis 7	Tubes 2, 3, clear; 1, 4, not entirely clear	Paresis 7	Positive
5555542100	Cerebrospinal syphilis 2	Tube 2, clear; 3, 4, not entirely clear	Cerebrospinal syphilis 2	Positive

TABLE 4.—TYPE 3, HIGHEST AMOUNT OF PROTEIN, MOST PRECIPITATE IN END TUBES

Colloidal Gold Reaction	Diagnosis	Mastic Reaction	Globulin Percentage	Wassermann Reaction
	Blood serum, 8%	Tubes 4, 5, clear; 3, somewhat clear	From 8 to 5 Blood serum, 8%	
	Blood serum, 5%	Tubes 3, 4, 5, clear; 2, somewhat clear	Blood serum, 5%	
0001331000	Cerebrospinal meningitis 1	Tubes 3, 4, 5, clear	Cerebrospinal meningitis 1	Anticomplementary
	Blood serum, 3.5%	Tubes 3, 4, 5, clear; 2, almost clear	From 5 to 3 Blood serum, 3.5%	
00013+3+1000	Cerebrospinal meningitis 6	Tubes 4, 5, clear; 3, almost clear	Cerebrospinal meningitis 6	Anticomplementary
0013310000	Cerebrospinal meningitis 3	Tubes 3, 4, 5, clear; 1, 2, almost clear	Cerebrospinal meningitis 3	Anticomplementary
5555541100	Paresis 6	Tubes 2, 3, 4, 5, clear; 1, almost clear	Paresis 6	Positive

(*c*) Paresis, seven fluids. The Wassermann reactions in all were positive, the colloidal gold reactions all typical.

(*d*) Tabes dorsalis, two fluids.

(*e*) Cerebrospinal syphilis, three fluids.

The Wassermann reactions in *d* and *e* were positive. In view of the colloidal gold readings in these five cases, a brief description of them is merited:

Case 1 (Tabes dorsalis 1).—The patient has been in the Philadelphia Hospital for the Insane since 1894. He is a fairly advanced though apparently nonprogressing case of tabes dorsalis.

Case 2 (Tabes dorsalis 2).—In this, a case of five years' duration, there are no symptoms of paresis.

Case 3 (Cerebrospinal syphilis 1).—Symptoms of bulbar palsy began prior to 1914, how long before 1914 cannot be said.

Case 4 (Cerebrospinal syphilis 2).—The patient is 62 years old and shows no mental loss. He has had hemiplegia of nineteen years' duration, with epileptiform convulsions of two years' duration.

Case 5 (Cerebrospinal syphilis 4).—The patient has partial optic atrophy. He had an attack of mania in 1914 followed by a lucid interval, another attack of mania in 1916 followed by a lucid interval, an attack of melancholia early in 1917, and is now somewhat maniacal.

The Achilles tendon and patellar tendon reflexes in the three cases of cerebrospinal syphilis are exaggerated. It will be noted that the spinal fluids in these five cases (tabes and cerebrospinal syphilis) yielded a typical paretic curve. It has been previously pointed out that nonparetic patients and even patients who are not likely ever to become paretic may give a paretic curve with the colloidal gold test.[5]

The results of the mastic tests are shown in Tables 2, 3 and 4. These tables show that no matter what the pathologic source of the spinal fluids, the mastic reactions depend on the amount of globulin present. As with blood serum, the type of reaction falls into three groups, according to the amount of protein present. In Table 3 it is seen that three cases of cerebrospinal syphilis, three cases of cerebrospinal meningitis, one case of tabes dorsalis, and two cases of paresis yielded similar reactions. Normal spinal fluid caused no change in the mastic reagent, or occasionally a loss of translucence in one or two tubes.

CONCLUSIONS

1. The amount of precipitation in the gum mastic reaction depends on the quantity of globulin present in the spinal fluid tested. The maximum precipitation is obtained with an optimum amount of globulin.

2. The reaction obtained does not determine whether the fluid is syphilitic or nonsyphilitic.

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[4] I am indebted to Dr. S. F. Hogue of the Pepper Laboratory for the colloidal gold tests.

[5] Immerman, S. L.: Herpes Zoster in Tabes Dorsalis and General Paralysis of the Insane, The Journal A. M. A., June 2, 1917, pp. 1607-1609, Footnotes 16 and 17.

3. The gum mastic test is not equivalent to or supplementary to the colloidal gold reaction.
4. As a clinical test, the information obtained from the gum mastic reaction can be obtained by much simpler means.

Thirty-Fourth and Pine Streets.

BUTTER AS A VEHICLE OF INFECTION IN TYPHOID*

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Very little reference is made in medical literature to the possibility of the transmission of infective agents through butter. Fewer still are reports of actual dissemination of disease by this agency. Rosenau, Frost and Bryant[1] found *Bacillus coli* in six, streptococci in fourteen and the tubercle bacillus in two of twenty-five samples of market butter collected in Boston. Swithenbank and Newman[2] cite several investigations in which the tubercle bacillus was found in the butter examined. H. W. Hill[3] reports a rural outbreak of diphtheria in which the epidemiologic evidence indicated that distribution of the diphtheria bacillus had been effected through the consumption of butter from a local creamery which had been receiving cream from premises on which existed a case of diphtheria. Hill also reports[4] an outbreak of from thirty-five to forty cases of typhoid localized to one ward in Anoka. The only discoverable medium of infection was country butter, retailed at a local grocery and made at a farm during the course of an unrecognized case of typhoid.

No other reports have come to my attention in which butter has been considered the medium by which pathogenic organisms were disseminated.

Zae Northrup[5] has studied the influence of the products of lactic organisms on *Bacillus typhosus*. She finds that the minimum acidity produced by *Bacterium lactis-acidi* which will destroy the typhoid bacillus corresponds to 80° acid in milk and 28° acid in whey. *Bacterium bulgaricum* has less effect, requiring the production of 208° acid in milk or 60° acid in whey to exert the same effect. She finds that the time required for inhibition to take place is in inverse proportion to the minimum acidity producing inhibition. The influence which the other species of bacteria that may be present in milk exert on lactic fermentation prevents any very definite conclusions from being drawn from her experiments. Northrup quotes Boethel, who states that "in butter, typhoid bacteria are found after ten days, especially in butter which is strongly acid, as this enclosed sour brine is a good nourishing medium." She also states that Bassenge, as well as Behla, says that when milk, butter, etc., contain 0.4 per cent. lactic acid, typhoid bacilli are killed within twenty-four hours, although Frankel and Kister found them living even after forty-eight hours.

The meager data available prompt the reporting of the following two outbreaks, in the first of which the epidemiologic evidence implicating butter is quite conclusive, though in the second, the evidence, while suggestive, is not sufficient to be conclusive.

FIRST EPIDEMIC

Township X is located in the northeastern portion of Iowa, and is altogether rural. In 1915, it had a population of 894, including the 353 persons of the village of Y, in which is situated a creamery. In the dairy farming districts, the practice of churning in the farm home is at present quite obsolete, not being carried on even to secure the butter needed for home consumption. Table butter is secured from the creamery to which the fresh cream or whole milk is sold.

Township X has heretofore been reasonably free from typhoid fever. During August, 1917, seven cases developed between the 12th and 21st and, September 2, one additional case, in which the prodromal period was prolonged, was recognized. Two of these patients lived in the village of Y, and the remainder were scattered widely in the country. The eight cases occurred in six homes, two country homes having two cases each. The last four cases occurred so close together as to indicate simultaneous infection from the same source. Five were females, and three males. Three were between 15 and 20 years of age, two between 20 and 50, and three were over 50 years of age. The occurrence of several cases in one locality, with closely approximated dates of onset, indicates that infection had probably been contracted from a common source at approximately the same time.

None of the patients had been away from home except on trading trips to nearby towns which were free from infection. Careful and detailed inquiries failed to elicit any information concerning opportunities for the contraction of infection through contact, from food or drink consumed away from home, or from foods purchased at retail and brought into the home. The only food brought into these homes at the probable time of infection was butter produced in the local creamery at Y, and consumed by all the patients. Five of the victims were heavy consumers of fresh buttermilk from the same creamery. They were all considered the heavy butter users of their respective housholds. Twenty-nine persons, including the patients, lived in the six invaded households. In no discoverable particular had these households any common association that would account for the introduction of typhoid bacilli, excepting the butter.

Meanwhile, in a home in an adjoining township, there existed a case of typhoid in which the patient had taken to bed, July 31. From these premises cream was sold to the creamery in Y until August 23. In the early stages of the illness of this patient, proper care in the collection and disposal of the discharges from the patient was not exercised. I was informed, for instance, that undisinfected feces was permitted to stand outdoors for long periods, accessible to flies. During this time, four contact cases developed on the premises, and three other cases in the immediate neighborhood which could be ascribed only to carelessness in the disposal of infective material. After this patient had been sick about a week, a competent nurse was installed.

In the creamery at Y, the cream is not pasteurized before ripening or churning, being usually churned the day following its receipt. Although most of the butter is packed for shipment to a commission house in New York City, a small amount of fresh butter is returned to the patrons furnishing cream, and is also sold in the stores in Y.

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* From the Department of Pathology and Bacteriology, State University of Iowa College of Medicine.

[1] Rosenau, M. J.; Frost, W. D., and Bryant, R.: Jour. Med. Research, 1914, 30, 69.

[2] Swithenbank and Newman: Bacteriology of Milk, p. 220.

[3] Hill, H. W.: Third Biennial Report, Minnesota State Board of Health, 1911, p. 203.

[4] Hill, H. W.: Fourth Biennial Report, Minnesota State Board of Health, 1913, p. 240.

[5] Northrup, Zae: Tech. Bull. 9, Michigan Agric. Exper. Station.

The epidemiologic evidence clearly indicates that at some time in early August, an infected lot of cream was sent from the foregoing premises to the creamery at Y. Here it was churned, and a small amount of the butter and buttermilk from that churning was distributed in X township.

SECOND EPIDEMIC

P is a thriving town in south central Iowa, having a population of 1,324 in 1915. The town and adjacent countryside is largely populated by Hollanders. In September and October, 1915, eight cases developed in P, and two in the adjacent countryside. One case had occurred during July.

Of the epidemic cases, eight patients had been out of town during the month preceding their illness, but while out of town their exposure to contact infection could not be learned. Patients 2, 6 and 9 had been to the state fair at Des Moines. Patients 3 and 10 had been in the country adjacent to P. Patient 8 had been to Oskaloosa twice, September 15 and October 14, and Patient 11 had returned from San Francisco, August 21.

The other cases, classified according to the dates on which the patients took to bed, are as follows: September 12, two cases; September 14, three cases; September 26, one case; October 3, one case; October 10, two cases; October 24, one case. It is therefore seen that the outbreak was not explosive in character, but covered an extended period of time. From these data it might appear that the cases were not due to the use for a brief period of a common active route of infection.

Of the ten patients, nine were females and one was a male. It will be further noticed that the cases were all among adults or young adults, the youngest, in Case 5, being 14 years old. This is a rather unusual distribution of cases, and the preponderance of cases in adult females is noteworthy.

Classified according to occupation, the patients are thus grouped: housewife, 10, 11 and 1; clerk, 1; telephone operator, 2; college student, 6 and 8; school girl, 5; farmer, 9; at home, 3. There is no preponderance of cases among members of any single occupation. The home sanitation of all cases developing in P was good.

Patients 1, 7 and 9 said their health previous to the attack had been poor. This might possibly indicate that infection took place somewhat earlier than would be judged from the date of taking to bed. The other patients considered their previous health good.

Contact infection seems possible only with Patient 5, who lives next door to Patient 6. No history of contact was obtainable in any of the other cases.

Three patients were sole users of the city water and four used it occasionally. These were Patients 2, 11, 6, 9, 1, 5 and 8. Three (10, 7 and 3) used water from private wells exclusively. A consideration of the distribution of the residence of these patients, the time of onset and their ages and sexes does not indicate that drinking water is responsible for the outbreak.

One patient used condensed milk, two used milk from their own cows, three denied the use of milk, and four used milk from three separate sources. It is evident that milk can be excluded as a source of infection.

Nine people had eaten ice cream at several different places: four (1, 2, 6 and 8) at W; six (2, 3, 5, 6, 7 and 8) at X; three (3, 6 and 8) at Y, and three (4, 8 and 10) at other places. Patient 9 denied the use of ice cream, and Patient 11 was uncertain. The ice cream sold at W, X and Y is manufactured at different places.

All patients had ordinarily secured their meals at home previous to their illness, but eight patients (1, 2, 6, 7, 8, 9, 10 and 11) had eaten at a church social given by the R church, August 26. Patients 1, 2 and 11 had secured meals at three different restaurants in P, and Patients 3 and 4 had eaten in the country. This church social seems to be the only possible common place of infection, but it seems remarkable, even if infection was contracted there, that Patients 1, 7 and 8 would be five and six weeks in the incubation stage of the disease. It should further be noted that Patients 1 and 7 state that their previous health had been poor, which might indicate nevertheless, that recognition of typhoid was delayed. Among other foods served at the church social were potato salad, chicken sandwiches and ice cream. Patients 1, 2, 7, 9 and 11 ate both potato salad and chicken sandwiches. Patient 8 denied eating anything besides ice cream, and Patient 10 died before the investigation. We have endeavored to find the sources from which were donated the potato salad and the chicken, but so far have been unsuccessful. The ice cream served came from Z, as did also a portion of the butter. Water was not served.

This social had a very large attendance, which was estimated as high as 500. It will thus be seen that probably a little over 1 per cent. of its patrons subsequently developed typhoid. It should be further noted that Patients 5 (contact) and 3 did not attend.

Five patients (2, 3, 4, 6 and 8) used butter from Z, at their homes, and three (1, 7 and 9) used butter from various sources, including Z, in the month preceding their illness. Patient 5 did not use Z butter.

Butter from Z is thus the only common ascertainable medium of infection for those patients who attended the church social and those who did not. The Z butter used at the church social was only one fifth of the total amount of butter used. If some article of food at the social had been the medium of infection, in view of the large attendance, we could ordinarily expect a much larger percentage of cases occurring among those who had eaten there. Furthermore, the incubation period in certain of the cases is long, if the church social is considered the place where infection was acquired. We have been unable to ascertain if the church social patients used Z butter, although it is known that this butter was served.

It was learned that on August 21, the manufacturer of Z butter had purchased thirty-nine pounds of cream from J. V., whose wife had typhoid fever in March and April, 1915. This was the second attack of typhoid which Mrs. J. V. had sustained, having experienced the first while a girl of 3 in Holland. This cream had been churned, with other cream, August 23, without pasteurization before ripening. The butter made from it could therefore have been in the local market by the date of the church social. Efforts were made to secure specimens of the feces of Mrs. J. V. for laboratory examination, but these were refused.

The possibility of transmission by means of butter is therefore the most definite evidence we were able to secure from the *second outbreak*. Those in charge of the church social were not particularly willing to furnish the desired information.

COMMENT

Milk and cream are very suitable mediums for the *multiplication* of the typhoid bacillus, particularly in the warmer months, but with the gradual increase of lactic acid in the souring or ripening, the typhoid bacilli undergo a gradual diminution in numbers. If we assume that a certain lot of sweet cream did become infected, what might we be justified in considering the subsequent chain of events? With souring, the typhoid bacilli undergo a gradual reduction in numbers. Furthermore, the infected sour cream is diluted with several times its volume of uninfected cream at the creamery. Dilution and attenuation or destruction of the infective organisms thus occurs. Furthermore, the butter made from such cream is not always immediately disposed of, but different lots may remain in storage or on the retail market for several weeks, during which time the strong salt solution in the butter may effect a further reduction of the number of typhoid bacilli present. Therefore, commercial butter would not necessarily cause an explosive outbreak of disease similar to that caused by infected milk; and, furthermore, the number of cases in proportion to the size of the infected lot of butter would be much smaller when compared with the number resulting from infected milk.

It should be noted that in neither of these instances was the cream pasteurized before ripening with a pure starter. These examples serve to indicate that pasteurization of cream for butter-making is as highly necessary from the standpoint of disease prevention as it is desirable from the standpoint of the prevention of undesirable fermentations.

TREATMENT OF SCIATICA

WITH AN ANALYSIS OF NINETY-ONE CASES *

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Sciatica, until very recently, was considered a distinct morbid entity. It was defined as a neuralgia of the sciatic nerve due to conditions within the nerve itself, or caused secondarily by organic lesions adjacent to the nerve, its roots or their origin in the cord. In the past few years, however, there has been a tendency in practically all the cases to regard the condition as secondary to some organic lesion.

Déjerine and his school have called attention to the segmentary distribution of the sensory disturbances in some cases of sciatica, and this they consider evidence that the site of the inflammation is in the roots and not in the trunk of the nerve. They have given the name of "radiculitis" to this condition. Wertheim-Salomonson asserts that one half of the cases of sciatica which he observed were due to radiculitis; he is of the opinion that most investigators overlook these cases because they fail to recognize the root type of the sensory disturbances. Many authors speak of neuralgia of the nerve, and it is probable that the indiscriminate use of this term has caused skepticism regarding the existence of sciatica as a clinical entity. A few believe with Gowers that all cases of sciatica are due to a neuritis.

It is held by others that most of the cases of idiopathic sciatica are due to lumbosacral and sacro-iliac disease and sacro-iliac subluxation. In fact, in the discussion of Rogers' paper[1] before the Section on Orthopedic Surgery at the 1916 session of the American Medical Association, some of the members went so far as to deride the idea that there could be an essential nerve inflammation. Now, while there is no question that inflammation of the sacro-iliac synchondrosis, if it is intense enough and of long duration, can cause symptoms which are indicative of irritation of the sciatic nerve or the roots entering into its formation, and although treatment of the primary condition will often remove the manifestations of sciatica, the symptoms which are caused by sacro-iliac disease are so definite that there should be no difficulty in their detection and differentiation from symptoms referable to the sciatic nerve or its roots. The same statement holds true regarding hip disease, which has been regarded by some as causative of sciatica.

As our knowledge has been obtained mainly from the appearance of the nerve when exposed at the operation for stretching, or from pieces occasionally removed at such times, little is known of the pathology of the condition. The nerve is described as being red and swollen, and marked exudation into the nerve sheath and especially into the connective tissue between the funiculi has been observed. Hemorrhages have often been found; occasionally the endoneurium is involved, and degeneration of the nerve fibers has been reported. The microscopic appearance of the nerve and even the edema may, of course, be due to the handling and exposure of the nerve during the operation. The same is true of the hemorrhages that have been found. It may very well be that the true pathologic condition responsible for this disease lies nearer the roots of the nerve, either within the vertebral canal or in parts just outside. There has been no opportunity to examine the nerve in these regions.

ANALYSIS OF CASES

My own experience has led me to believe that there exists a large group of cases in which the lesion, functional or organic, exists in the nerve itself; and in order to verify this fact, I have carefully examined ninety-one cases which have come under my care in the past years. In all these cases, definite organic lesions elsewhere could be excluded. The greater number of these patients were seen in the neurologic service of the Mount Sinai Hospital, and I am indebted to Dr. Bernard Sachs for the privilege of using this material.

The majority were between the thirtieth and sixtieth years of age; and contrary to the statistics of most authors, who give a ratio of five males to one female, the proportion of men and women was nearly equal, namely, fifty-one males and thirty-nine females.

The onset of pain was almost always gradual. The pain began in the sciatic notch or in the lower lumbar region as well, and gradually extended down the course of the sciatic nerve. In most of the cases, the pain at the beginning was not severe but rather of a dull, aching character, so that the patient paid very little attention to it. The pain was sticking, burning or lancinating in character, and radiated downward from the sciatic notch along the posterior aspect of the thigh into the calf muscles and foot. In many of the chronic cases it was confined to the calf muscles, principally on their outer aspect, and to the outer side of the foot, where it became persistent and caused as much discomfort as the pain in the thigh and buttock during the early stages.

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* From the neurologic service of Mount Sinai Hospital.

[1] Rogers, M. H.: An Analysis of Fifty Cases of Sciatica, The Journal A. M. A., Feb. 10, 1917, p. 425.

The influence of posture on the severity of the pain varied. In the early stages the prone position was found to be more comfortable, but in the later stages walking appeared to give relief in some cases. There were no definite points of local tenderness.

In nineteen cases there was distinct paresthesia; in six there were areas of hypalgesia; and in seven, areas of hyperesthesia were found. Each patient was examined with the view of diagnosing radiculitis, but we were unable to detect definite sensory disturbances corresponding to involvement of the roots or segments of the spinal cord. It has been stated that the pain in radiculitis is intensified by coughing and sneezing, and in many of the cases this symptom was present. However, in the absence of definite segmentary disturbances it did not seem to us that the diagnosis of radiculitis was warranted. We found Lasègue's sign present in varying degrees of intensity in nearly all of the cases, and its intensity corresponded with the severity of the affection. In long standing cases the reflexes were always affected. The knee jerks were absent twice (which is very rare), diminished in intensity in twenty-two, and active in twenty cases. The Achilles tendon reflex was absent in ten and diminished in seven cases. Muscular atrophy was present in only eight cases, though very frequently the muscles of the affected leg were flabby. There were no other trophic changes.

The Wassermann reaction in the blood was negative in all of the cases. In sixteen cases, lumbar puncture revealed normal spinal fluids. Syphilis, therefore, can in all probability be excluded as a cause of sciatica. One case which improved under epidural injections yielded a spinal fluid which contained twenty-seven cells. This exceptional finding, together with the presence of bladder symptoms, changes in the abdominal reflexes and weakness in the affected leg, led me to conclude that the condition was not sciatica despite the good result obtained by treatment.

In twenty-eight cases, roentgen examination of the vertebral column and sacro-iliac joints was made. One showed a destruction of the fifth lumbar vertebra of unknown character, four showed mild spondylitic changes in the lumbar vertebrae, and two arthritic changes in the sacro-iliac joint.

The average duration of the illness was six months. The briefest period was three weeks, and the longest, twenty-seven months. In all the cases of this series, organic abnormalities outside the sciatic nerve itself were excluded, and the patient recovered without any treatment except that directed to the relief of the nerve symptoms.

TREATMENT OF SCIATICA

In a consideration of the treatment of sciatica, some attention to the question of prophylaxis is in order. The condition is undoubtedly more frequent during the summer months. This is probably due to the exposure of the body to drafts in order to sleep during hot nights. It is unquestionably true that individual susceptibility to climatic variations exists. Those in whom a draft seems to bring on an attack of coryza, or vague pains in the muscles which are commonly designated as rheumatic, ought to be especially careful not to subject the legs to such exposure. This holds true regarding the use of the cold plunge or of shower baths by such persons. Probably many cases of sciatica could be aborted in their early stages if patients and physicians would recognize the significance of the early pains and use remedial measures promptly.

In the early stages, rest in bed, the application of warmth along the course of the nerve, especially in the gluteal region, and the administration of large doses of the salicylates are indicated. Complete rest in bed is the one remedy on which stress should be laid. The rest, and moist heat in some form, are the two most efficacious measures in the beginning. All forms of massage are absolutely contraindicated. At this stage they always do harm. Counterirritants likewise are of little benefit. If salicylates are given, they should be administered in large doses.

The salicylates undoubtedly lessen the pain, and in my opinion also exert a beneficial effect on the inflammatory process itself. If the pain is severe, codein should be freely administered. If the attack does not yield to these measures, and especially in those cases which have lasted for weeks or months, recourse must be had to other methods.

There are two methods which have yielded good results: One is the injection of physiologic sodium chlorid solution into the neighborhood of the nerve according to the technic of Lange, and the other is the epidural injection along the lines described by Cathelin. In making perineural injections, the patient lies on the abdomen with a pillow underneath its lower part, and the feet projecting beyond the edge of the table or couch. A line is then drawn from the sacrococcygeal articulation to the lowest point of the postero-external border of the great trochanter. The point of puncture is 1 inch to the outer side of the junction of the inner one third and outer two thirds of the foregoing lines. A trocar and cannula about 20 cm. in length and 2 mm. in caliber is used in the injection. The point of the trocar ought not to project very far beyond the cannula. The needle is inserted directly downward through the gluteal muscles until the nerve is reached. When the nerve is touched, the patient feels a sharp, shooting pain down the leg, and there is very often involuntary contraction of the gastrocnemius muscles. When the nerve is struck, the trocar is immediately withdrawn, and a syringe attached to the cannula. Physiologic soduim chlorid solution is then injected in amounts varying from 100 to 150 c.c. Considerable pressure is sometimes necessary in order to force the fluid into the tissues, and in such cases, care must be taken that the needle is not forced into the nerve. Considerable pain may follow the injection, which, as a rule, subsides after an hour.

It may be necessary to repeat the injection every other day until at least five are given, but as a rule three injections suffice. Alcohol should never be used for these injections.

The epidural space in an adult begins at the lower edge of the first sacral vertebra, where the dura ends. It extends down to the sacrococcygeal articulation. At this level the injections are made. There are certain landmarks by which this opening, the foramen sacrale superius, may be identified. It lies at the end of the crest made by the spines of the sacrum. It has the shape of an inverted V or U, and is about 1 cm. wide and from 1.5 to 2 cm. in length. It is bordered laterally by two prominences, the cristae sacrales laterales, which are usually easily felt by the finger. The opening is covered by a dense fibrous ligament, the ligamentum sacrococcygeum. The opening lies generally 2 cm. above the end of the gluteal fold.

The needle used for the injection should be about 8 cm. in length, and 1 mm. in caliber. I have used an ordinary steel needle previously tested as to its flexibility. If greater flexibility is desired, a needle made of platinum iridium may be used; but a broken needle need cause no alarm: it will do no harm if allowed to remain in the epidural space. The needle is to be inserted to a depth of 6 cm. to reach the second sacral vertebra. There is no danger of entering the subarachnoid space, because the dura ends at about the level of the first sacral vertebra; however, to be certain that this space has not been entered, it is well to wait for a few minutes before injecting to see whether there is an escape of cerebrospinal fluid. If possible, when inserting the needle, one should place the patient in the knee-chest position in order more easily to locate the landmarks. If the injection is made with the patient lying on the side with the knees and thighs flexed, the landmarks are not so easily discerned, and the gluteal fold usually lies above the foramen. It may be difficult, if not impossible, to enter the epidural space of very stout persons, especially of stout women. In such cases, recourse must be had to the nerve injection.

It has been my custom to anesthetize the skin and tissue overlying the foramen and the ligament with novocain. In doing this, one must be careful not to cause much swelling, which might obliterate the landmarks. After the needle has been pushed through the skin, considerable resistance is met at the ligament. Once this resistance is overcome, the needle glides into the epidural space. If the patient is in the knee-chest posture, the needle is inserted into the body at an angle of 45 degrees. After it has passed through the ligament the needle is held so that it is horizontal to the body. During the injection, the patient lies on the affected side.

The injection consists of warm sterile physiologic sodium chlorid solution. To the first 10 or 20 c.c. of solution is added 0.125 gm. of novocain with epinephrin, and a few minutes are allowed to elapse after their injection to obtain the full benefit of their anesthetic effect. In all, from 60 to 80 c.c. of solution are injected at a time.

The injections are given at forty-eight hour intervals. They may be given in the office, and the patient will have no difficulty in going home. It is preferable, however, for the patient to remain in bed during the intervals. The average number of injections required is three. Occasionally it may be necessary to give five, but sometimes two or even one suffice to relieve the condition. The most difficult cases to cure are the chronic ones in which the pain is along the outer aspect of the thigh. In some instances this pain persists even after several injections, and then treating the limb with superheated air in the Tyrnauer apparatus is efficacious. The heat treatment alone in the subacute and chronic cases is of no avail. Massage ought never to be used—it appears to do more harm than good. A patient may improve after several epidural injections but not be entirely cured. The injections of sodium chlorid solution along the course of the nerve in the gluteal region may cause the disappearance of the pain. There have been no untoward results from the epidural injections. The knee jerk on the affected side has disappeared for a short time, and sometimes the patient complains of delayed micturition; but these symptoms soon disappear.

The treatment of sciatica by injection of sodium chlorid solution, whether epidurally or in the neighborhood of the nerve, offers a means of shortening the duration of this painful malady from weeks and months to days.

116 West Fifty-Ninth Street.

Clinical Notes, Suggestions, and New Instruments

THE STERILIZATION OF SURGEONS' SANITARY PAPER CAPS*

Wallace A. Manheimer, Ph.D., New York

Paper caps in place of linen caps for surgeons are becoming very popular for a number of reasons. They are cheap, costing less than the laundering and depreciation of linen caps, are cool and light, are automatically adjustable and are free from lint. While there are probably several types of paper hats on the market, the one which has an elastic crape paper insertion in the back is the one to be recommended because it adheres firmly to the head, preventing the dropping of dust on the wound. This hat is made over a block the shape of the head by pasting a paper band of glacine paper to a crown piece composed of any type of paper. In the back of the paper band is an elastic insert composed of crape paper which permits the hat to be stretched sufficiently to conform to heads of any size. A piece of thick corrugated absorbent paper is pasted on the inside of the paper band just where the hat touches the forehead, in order to absorb sweat. These hats make a neat appearance and have proved satisfactory.

The practice of sterilizing surgeons' caps varies considerably throughout the country, most of the leading hospitals dispensing with the practice altogether. Nevertheless, a great many surgeons require sterilized hats, and for this reason the methods which can be used for the sterilization of the paper cap are set forth below. The hat is made of a glacine paper which has high tensile strength, but must be handled carefully during sterilization.

METHODS OF STERILIZATION

1. *Hot Air Sterilization.*—At temperatures ranging from 120 to 160 C., hot air is not satisfactory for the sterilization of glacine paper, of which the hat is made. The paper becomes hard and brittle, and cannot be handled without tearing.

2. *Autoclave Sterilization.*—(*a*) At 15 to 16 pounds steam pressure for thirty minutes, the *Bacillus subtilis* spores on the threads packed in the hats are destroyed, the paper is browned, and the tensile strength and friability of the paper is only slightly impaired. No dry heat is used.

(*b*) With 15 to 16 pounds steam pressure for fifteen minutes, 10 inches of mercury vacuum with preliminary heating for fifteen minutes, the hats are sterile, slightly browned. *B. subtilis* spores are destroyed and the strength of the hat is unimpaired.

(*c*) With 10 pounds steam pressure for fifteen minutes, and a rapid release of steam, three minutes, the hats dry on removal, the color being only slightly changed. The hats are sterile, *B. subtilis* spores are destroyed, and the tensile strength of the paper is unimpaired.

3. *Flowing Steam Forty-Five Minutes in the Arnold Sterilizer.*—The hats are dried for two minutes in a hot air oven. The tensile strength is unimpaired, the hats are slightly browned, they are sterile and *B. subtilis* spores are destroyed.

CONCLUSIONS

1. Paper caps in place of linen caps used by surgeons can be sterilized, if desired, in a number of ways, but not by dry heat, which destroys the tensile strength of glacine paper.

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* From the Research Laboratory, New York Department of Health.

2. The hats can stand the autoclave up to 15 pounds pressure for fifteen minutes without appreciable impairment of strength. The best method to use is low pressure (10 pounds) for fifteen minutes with rapid release of steam from the sterilizer, for the purpose of drying the hats.

3. Flowing steam for forty-five minutes, with two or three minutes in the hot air oven, sterilizes the hat (destroys *B. subtilis* spores) without impairment of the paper.

2350 Davidson Avenue.

FRACTURE REDUCTION WITH THE AID OF A SIMPLE TRACTION APPARATUS

Robert Soutter, M.D., Boston
Assistant Surgeon, Children's Hospital, Boston; Instructor, Harvard University Medical School

This apparatus occupies a space of 24 by 4 inches. It is convenient, therefore, for emergency fracture work at the front, or in hospitals in which a fracture table is not available. It is also applicable for the open reduction of fractures, for bone graft operations, and for plating, wiring or banding. It can be used for fractures of the shoulder, the shaft of the humerus, the elbow, the forearm, the wrist, the hip, the shaft of the femur, the knee, the tibia or fibula or both.

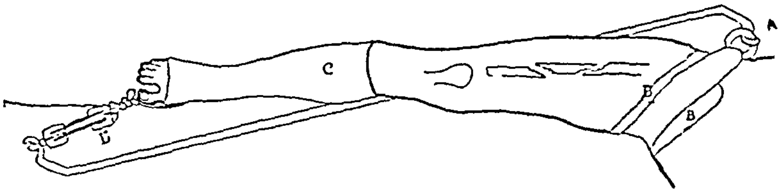

Fig. 1.—Fracture of the femur: Portable traction rod with two double block pulleys, and leather legging, *C*, applied. The rod is hooked into an iron ring at *A*. A heavy double canvas belt 4 inches broad is passed around the thigh over a folded sheet, *B*. The belt passes through the iron ring at *A*. Instead of the legging, *C*, a three strand army webbing may be passed around the ankle as shown in Figures 2 and 3. The ankle is well padded before the webbing is applied.

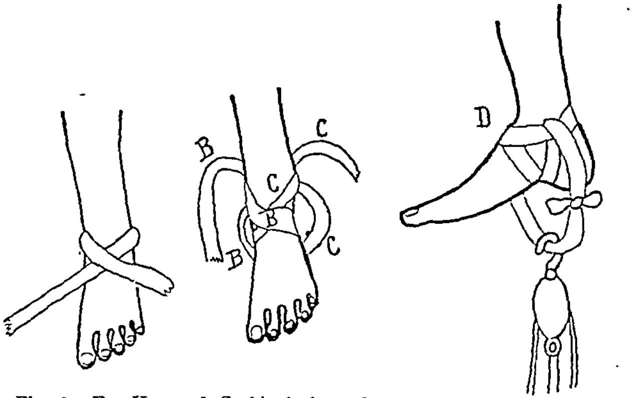

Fig. 2.—Dr. Hayward Cushing's knot for temporary traction during operations on the leg. The ankle is well padded with heavy felt passed around under the webbing. *The webbing is crossed in front of the foot.* The end *B* and the end *C* may be traced in the illustration. On the outside of the ankle, the end *C* crosses in front to the inside under the foot, then upward on the outside, and is looped around the original outside piece.

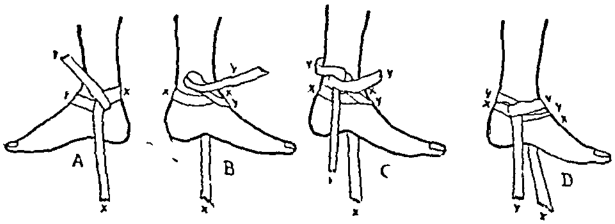

Fig. 3.—Knot used by Dr. Hawley for temporary traction on the leg. The webbing should be triple or double. It may be traced by the accompanying drawings. *A heavy felt pad should be put around under the webbing.*

The control of the traction is simple; it need not be removed for open operation or for the application of the dressing, splints or plaster.

Traction is applied by means of two double or triple block pulleys; one pulley is hooked to the rod, and the other to the ankle for traction on the leg. Countertraction is applied at the hip by a broad canvas belt over a folded sheet (for padding). The belt goes through a large iron ring which hooks over the traction rod.

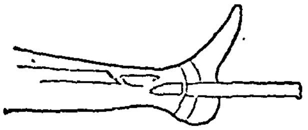

Fig. 4.—Fracture of the lower leg: Method of applying tape to the ankle, using Cushing knot (see Fig. 2).

For traction above the elbow, an army webbing strap doubled is passed over a folded pillow case (for padding) around the forearm, flexed at right angles, or a heavy pad is placed around the wrist and the webbing attached over it by one of the knots shown in the accompanying illustrations. The webbing is hooked to one pulley, and the other pulley is hooked to the rod. Countertraction is applied to the other end of the rod by means of a canvas belt passed around the chest high under the arms. The canvas belt passes through a heavy ring. The rod is hooked to this ring (Figs. 1, 2, 3, 4, 5, 6, 7 and 8). It is important to pad the webbing. The countertraction at the hip should be well padded to avoid injury to the sciatic nerve. A slip noose should not be used on the arm or leg. Several knots are suggested in connection with this method of reducing fractures; one devised by Hayward W. Cushing, and another used by Dr. Hawley.

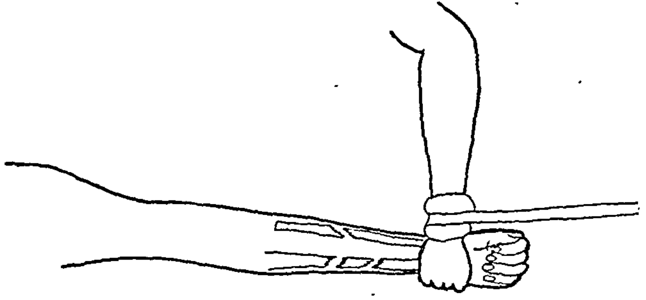

Fig. 5.—Fracture of the forearm: Traction applied to the assistant's wrist.

For open operation on the arm or forearm, the rod is placed on the operating table, a pillow over it, and the patient lies on the pillow. The exposed rod is covered with a sterile sheet allowed to hang over it. Sterile webbing is used, and a sterile pillow case folded for a wrist or a forearm pad. The pulleys and the tape are covered with sterile sheets. When the leg is prepared for operation, the rod may be covered by sterile sheets. The traction is controlled by a nonsterile assistant.

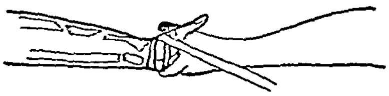

Fig. 6.—Fracture of the forearm: A pad is placed about the wrist, and the knot described in Figure 3 is applied to the wrist. This knot distributes the pressure and prevents constriction. The operator or an assistant controls the hand while traction is being made.

This apparatus is part of a larger portable traction apparatus used by me for over twelve years.[1] The apparatus consists of a rod, 8 feet long, with an offset and hook at each end. The rod is strong and jointed to make it portable.

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[1] Soutter, Robert: Boston Med. and Surg. Jour., 1907, 157, 724-726; Operations on Bones, Joints, Muscles and Tendons, Ed. 1, New York, the Macmillan Company, 1917, pp. 35, 227, 229.

In a large hospital, a fracture table, such as Dr. Hawley's, leaves little to be desired.

For the satisfactory treatment of fractures, a portable traction apparatus is often necessary. The apparatus described in this article has proved of great value for use in reducing fractures, and for open operations on fractures. Its size makes it especially serviceable for emergency use.

133 Newbury Street.

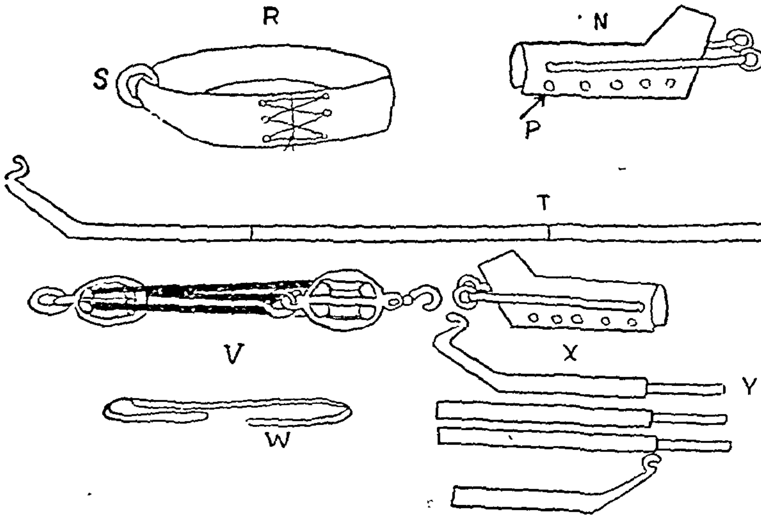

Fig. 7.—Details of apparatus: *N*, leather legging; *P*, loose rings for lacing; *R*, heavy canvas belt 4 inches broad, cross stitched with loose rings for lacing. The belt passes through an iron ring; *S*, iron ring; *T*, traction rod made from tubing; each section is 22 inches long, and there are four sections. Three iron rods 22 inches long are passed inside this tubing, and unites them into one long firm rod. *X* represents the tubing disjointed and the rods protruding; the rods may be removed for packing. *V*, double block pulley 4 inches each; *W*, webbing for ankle knot, as illustrated in Figures 2 and 3; *X*, traction rod *T* disjointed, showing how the rod *Y* may be removed from the tubing.

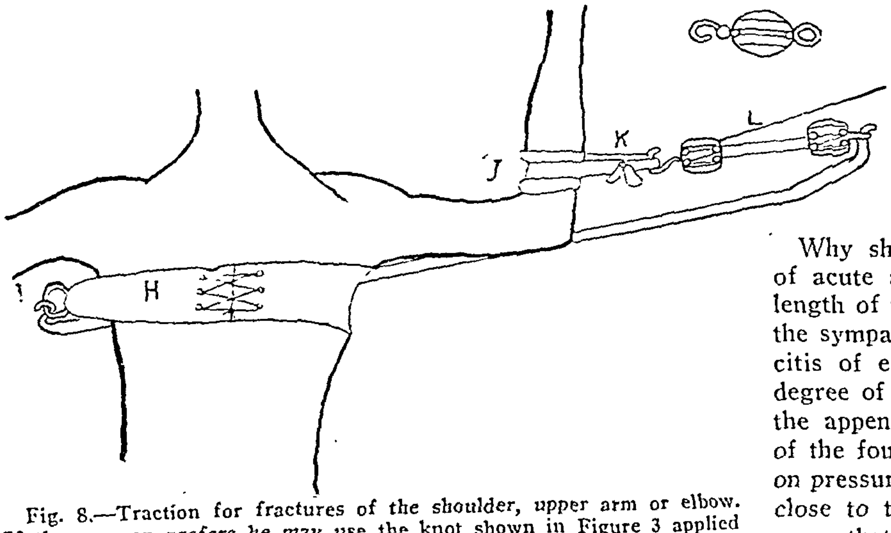

Fig. 8.—Traction for fractures of the shoulder, upper arm or elbow. If the surgeon prefers he may use the knot shown in Figure 3 applied to the wrist. The rod hooks into an iron ring at *I*; *H*, canvas belt passed through an iron ring at *I*; *J*, folded pillow case over which is passed a double army webbing *K*; *K*, army webbing hooked to pully; *L*, two double block pulleys.

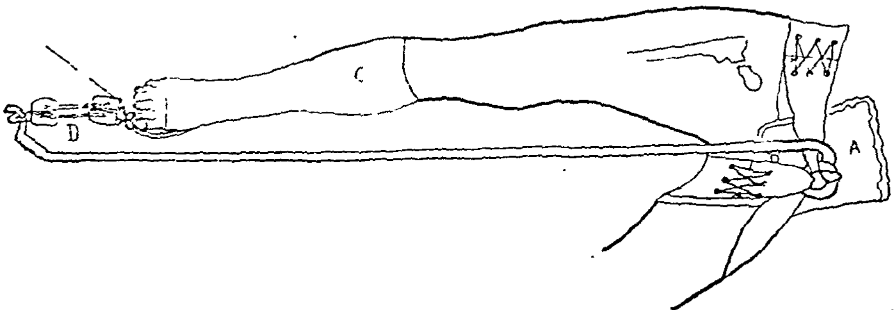

Fig. 9.—Apparatus adjusted for treatment of fractures of the femur high up. The canvas belt is applied to the other leg, and a second belt looped around the thigh portion of the first belt behind and brought around the flank double and passed through the iron ring, and then laced to itself. A piece of leather or heavy canvas is placed under the ring at *A*.

APPENDICITIS AND THE GYNECOLOGIST

Robert T. Morris, M.D., New York

About an inch and a half to the right of the navel and a trifle caudad, one will find on deep pressure a hypersensitive point in cases of chronic appendicitis of one of the four chief kinds. This tender point does not belong to cases of acute appendicitis. It does not belong to cases of pelvic irritation or infection, except in company with a similar tender point to the left of the navel. This tender point to the right of the navel will serve to give differential diagnosis between cases of chronic appendicitis and various pelvic irritations or infections.

Why does not this tender point to the right of the navel belong to acute appendicitis? Why does it not belong to right-side pelvic disturbances? In order to answer these questions, we must inquire into the nature of the tender point. *At that site we shall find* the right lumbar sympathetic ganglion. On the left side of the navel we find the left sympathetic lumbar ganglion. Apparently these ganglions represent the sensitive points. There is no direct nerve connection between the appendix and the right sympathetic lumbar ganglion. How, then, are we to acount for the tenderness on pressure? This problem introduces the question of sensorimotor synapse. Head has marked out areas of skin irritation belonging to certain organs, following the studies of Ross and of Sherrington, who showed that irritated internal organs frequently send impulses to superficial areas of the body. I postulate that the irritated appendix sends an efferent impulse to a segment of the spinal cord, and from that segment of the spinal cord an efferent impulse goes out to the skin over the area described by Head as belonging to the appendix. At the same time, a similar impulse goes out to the right sympathetic lumbar ganglion and stops there. This, at least, is my assumption. It is offered in explanation for the fact that when we have chronic irritation of the appendix there is also a disturbance of the skin in the Head zone for the appendix, and also a disturbance of the right sympathetic lumbar ganglion, which remains hypersensitive and tender on pressure.

Why should not this ganglion be hypersensitive in cases of acute appendicitis, as a rule? I assume that a certain length of time is required for the nagging appendix to excite the sympathetic lumbar ganglion. In cases of acute appendicitis of either one of the two common forms, the greater degree of sensitiveness is at McBurney's point, directly over the appendix. In cases of chronic appendicitis of any one of the four common kinds, the greatest degree of tenderness on pressure is at the point 1½ inches to the right of the navel, close to the spinal column, and corresponding to the right sympathetic lumbar ganglion. The reason this ganglion is not hypersensitive alone, but only in company with its left neighbor in cases of pelvic disturbance, is that the crossed action of the sympathetic and autonomic nerve branches between the pelvic ganglions and the lumbar ganglions causes irritative impulses to be shot simultaneously into the lumbar ganglions of the two sides.

In cases of chronic appendicitis, the second feature of diagnosis which does not belong to cases of acute appendicitis, and which does not belong to cases of pelvic disturbance, is persistent distention of the ascending colon with gas. Why should the ascending colon be distended with gas in cases of chronic appendicitis? We may assume that irritation from the nerve elements of a chronically inflamed appendix at first overstimulates the innervation of the muscularis of the ascending colon. This overstimulation, carried on for weeks or for months, eventually tires out the innervation of the ascending colon. When the innervation becomes wearied, the muscular coat of the ascending colon becomes relaxed and distended with gas, which it fails to press onward because of comparative lack of energy. This distention of the ascending colon with gas, which belongs particularly to chronic appendicitis, I call the "cider barrel sign." If we percuss the left side of the abdomen in a case of chronic appendicitis, we shall obtain a normal resonance note suggesting percussion of the cider barrel in October. If we percuss the right side of the abdomen, we obtain a percussion note suggesting that of the cider barrel in January.

These two points, then, the "cider barrel sign" and the point of tenderness on pressure to the right of the navel, appear to be important in distinguishing between chronic appendicitis and pelvic disorders of the sort that interest the gynecologist.

616 Madison Avenue.

A METHOD FOR FILING NECROPSY SECTIONS

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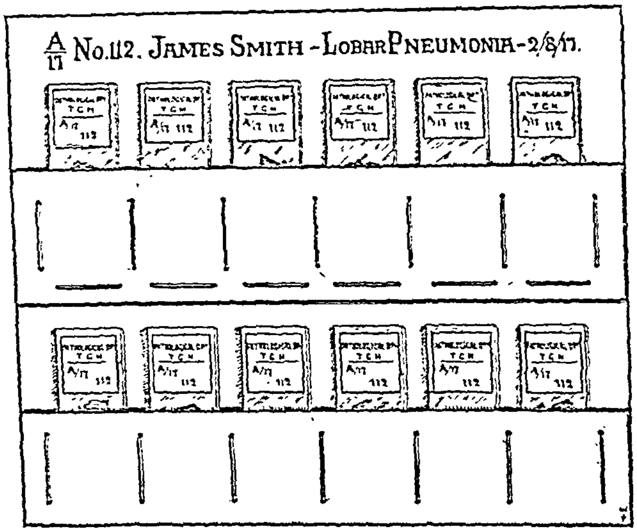
Department of Pathology, Toronto General Hospital

The ordinary methods of storing microscopic slides of necropsy sections in drawers or in boxes has always seemed to me not only an awkward method, but one which renders the sections very inaccessible. I wish, therefore, to submit the following means of adapting the ordinary filing cabinet to the filing of microscopic specimens of necropsy *sections* in a convenient and readily accessible form.



Adaptation of the ordinary filing cabinet to the filing of microscopic specimens of necropsy sections.

Our filing cabinet takes a card 9¼ by 7½ inches. One of the local publishing houses furnished *us with* folders of this size. The paper used is 140 pound tag manilla, cut *to a* size 9¼ inches square. One margin is then turned over *for* a distance of 1¾ inches, and wire staples eleven-sixteenths of an inch long put in so as to divide the folded strip into six equal compartments. In this way a folder which is 9¼ inches wide by 7½ inches high is made. A strip of the same material 1¾ inches wide, and of the same length as the width of the folder, is stapled in position so that the lower border is 3¾ inches above the folded lower border of the folder. This strip not only has the seven staples which divide it off into equal compartments, but also a staple at the lower part of each *compartment, thus* making space for the filing of twelve sections, and leaving room at the top for the number, name, date, and also a description of the principal pathologic lesion that has been revealed by the necropsy. There is sufficient room on the back of the folder for writing the complete anatomic diagnosis.

These folders are filed away in rotation, and can be cross indexed according to name and pathologic lesion. A cabinet 22 inches deep will hold *about* 250 of these folders when filled with microscopic slides.

Military Medicine and Surgery

INDUSTRIAL POISONING IN AIRCRAFT MANUFACTURE

ALICE HAMILTON, M.D.
CHICAGO

In the latter part of 1914, Jungfer[1] reported a new industrial disease that had appeared during the preceding year in an aeroplane factory in Johannisthal and had affected four out of a force of eight men. These men were employed in painting and spraying a solution of cellulose acetate over the linen that covers the aeroplane. All of them developed a severe acute hepatitis, and one died. Later in another factory in the same place ten men were poisoned and one died. Grimm,[2] writing shortly after, was able to give details of fifteen cases of poisoning among aircraft employees engaged in such work. The solutions used were sent to the pharmacologic institute of the University of Berlin for analysis by Heffter and Joachimoglu,[3] who reported that the toxic constituent was tetrachlorethane, of which some specimens contained as much as eighty-four in a hundred parts. They experimented on dogs, rubbing the solutions into the skin and also exposing the animals to the fumes. From the commercial mixtures and from pure tetrachlorethane they obtained the same results, namely, loss of weight, vomiting, presence of bile and blood in the urine, death with fatty degeneration of the liver, and hemorrhages into serous and mucous surfaces and in the heart muscle. In inhalation experiments narcosis came on, but was slower in appearance and less deep and lasting as the days went on, showing a gradually increasing tolerance on the part of the animals. The symptoms described above, however, put in their appearance and the course of the poisoning was the same, no matter how the compound was administered.

Tetrachlorethane had already been tested by Lehmann[4] of Wurzburg, the authority on industrial gases and vapors. As always, his experiments were for the purpose of determining the *minimum* dangerous amount of the vapor in air, and he found that air containing no more than 1 or 2 mg. of tetrachlorethane to a liter could be breathed for a relatively long period—six or seven hours a day for eighteen days spaced over four weeks—with no more serious *result than* loss of weight and drowsiness. If the fumes were stronger, narcosis came on, and after repeated exposures, serious disturbances of metabolism. In fatal poisoning he found solution of red corpuscles, basophilia, fatty liver, the heart muscle yellowish and the kidneys congested. He *found it* the most poisonous of the chlorin derivatives of the hydrocarbons, four *times* as poisonous as chloroform and nine *times* as *much* so as tetrachlormethane (carbon tetrachlorid).

The fatty degeneration of the liver as found by these German experimenters is more marked than that produced by any known substance except phosphorus, and as in phosphorus poisoning, it is associated with a yellow, flabby heart muscle, and with acute degenerative

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[1] Jungfer: Zentralbl. f. Gewerbehyg., 1914, 2, 222.

[2] Grimm, Heffter and Joachimoglu: Vrtljschr. f. gerichtl. Med., Series 3, 1914, 48, supplement, p. 192.

[3] Heffter and Joachimoglu: Vrtljschr. f. gerichtl. Med., Series 3, 1914, 48, supplement.

[4] Lehmann, K. B.: Arch. f. Hyg., 1911, 74.

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For the satisfactory treatment of fractures, a portable traction apparatus is often necessary. The apparatus described in this article has proved of great value for use in reducing fractures and for open operations on fractures. Its size makes it especially serviceable for emergency use.

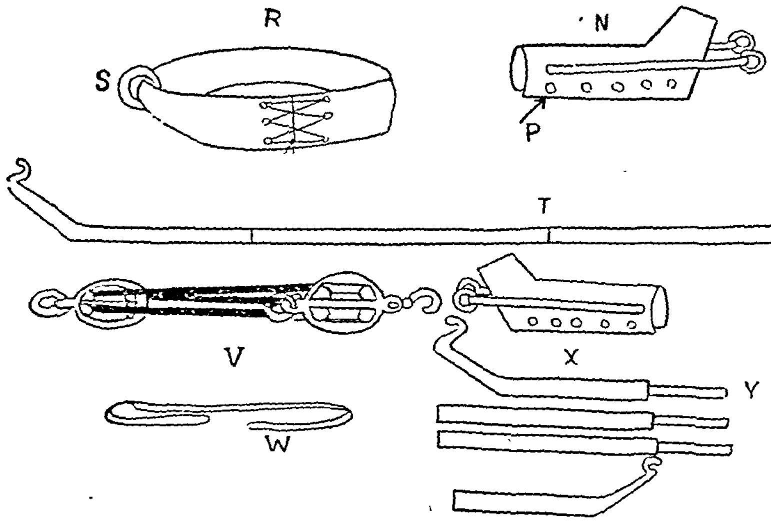

Fig. 7.—Details of apparatus: *N*, leather legging; *P*, loose rings for lacing; *R*, heavy canvas belt 4 inches broad, cross stitched with loose rings for lacing. The belt passes through an iron ring; *S*, iron ring; *T*, traction rod made from tubing; each section is 22 inches long, and there are four sections. Three iron rods 22 inches long are passed inside this tubing, and unites them into one long firm rod. *X* represents the tubing disjointed and the rods protruding; the rods may be removed for packing. *V*, double block pulley 4 inches each; *W*, webbing for ankle knot, as illustrated in Figures 2 and 3; *X*, traction rod *T* disjointed, showing how the rod *Y* may be removed from the tubing.

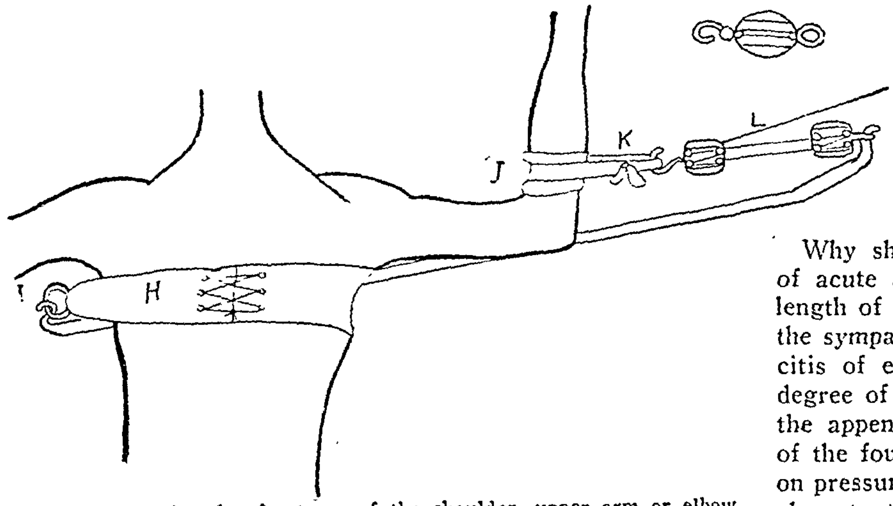

Fig. 8.—Traction for fractures of the shoulder, upper arm or elbow. If the surgeon prefers he may use the knot shown in Figure 3 applied to the wrist. The rod hooks into an iron ring at *I*; *H*, canvas belt passed through an iron ring at *I*; *J*, folded pillow case over which is passed a double army webbing *K*; *K*, army webbing hooked to pully; *L*, two double block pulleys.

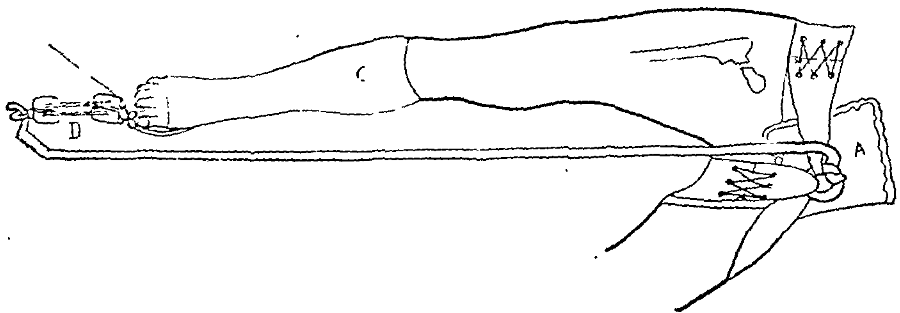

Fig. 9.—Apparatus adjusted for treatment of fractures of the femur high up. The canvas belt is applied to the other leg, and a second belt looped around the thigh portion of the first belt behind and brought around the flank double and passed through the iron ring, and then laced to itself. A piece of leather or heavy canvas is placed under the ring at *A*.

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APPENDICITIS AND THE GYNECOLOGIST

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About an inch and a half to the right of the navel and a trifle caudad, one will find on deep pressure a hypersensitive point in cases of chronic appendicitis of one of the four chief kinds. This tender point does not belong to cases of acute appendicitis. It does not belong to cases of pelvic irritation or infection, except in company with a similar tender point to the left of the navel. This tender point to the right of the navel will serve to give differential diagnosis between cases of chronic appendicitis and various pelvic irritations or infections.

Why does not this tender point to the right of the navel belong to acute appendicitis? Why does it not belong to right-side pelvic disturbances? In order to answer these questions, we must inquire into the nature of the tender point. At that site we shall find the right lumbar sympathetic ganglion. On the left side of the navel we find the left sympathetic lumbar ganglion. Apparently these ganglions represent the sensitive points. There is no direct nerve connection between the appendix and the right sympathetic lumbar ganglion. How, then, are we to acount for the tenderness on pressure? This problem introduces the question of sensorimotor synapse. Head has marked out areas of skin irritation belonging to certain organs, following the studies of Ross and of Sherrington, who showed that irritated internal organs frequently send impulses to superficial areas of the body. I postulate that the irritated appendix sends an efferent impulse to a segment of the spinal cord, and from that segment of the spinal cord an efferent impulse goes out to the skin over the area described by Head as belonging to the appendix. At the same time, a similar impulse goes out to the right sympathetic lumbar ganglion and stops there. This, at least, is my assumption. It is offered in explanation for the fact that when we have chronic irritation of the appendix there is also a disturbance of the skin in the Head zone for the appendix, and also a disturbance of the right sympathetic lumbar ganglion, which remains hypersensitive and tender on pressure.

Why should not this ganglion be hypersensitive in cases of acute appendicitis, as a rule? I assume that a certain length of time is required for the nagging appendix to excite the sympathetic lumbar ganglion. In cases of acute appendicitis of either one of the two common forms, the greater degree of sensitiveness is at McBurney's point, directly over the appendix. In cases of chronic appendicitis of any one of the four common kinds, the greatest degree of tenderness on pressure is at the point 1½ inches to the right of the navel, close to the spinal column, and corresponding to the right sympathetic lumbar ganglion. The reason this ganglion is not hypersensitive alone, but only in company with its left neighbor in cases of pelvic disturbance, is that the crossed action of the sympathetic and autonomic nerve branches between the pelvic ganglions and the lumbar ganglions causes irritative impulses to be shot simultaneously into the lumbar ganglions of the two sides.

In cases of chronic appendicitis, the second feature of diagnosis which does not belong to cases of acute appendicitis, and which does not belong to cases of pelvic disturbance, is persistent distention of the ascending colon with gas. Why should the ascending colon be distended with gas in cases of chronic appendicitis? We may assume that irritation from the nerve elements of a chronically inflamed appendix at first overstimulates the innervation of the muscularis of the ascending colon. This overstimulation, carried on for weeks or for months, eventually tires out the innervation of the ascending colon. When the innervation becomes wearied, the muscular coat of the ascending colon becomes relaxed and distended with gas, which it fails to press onward because of comparative lack of energy. This distention of the ascending colon with gas, changes in the kidney epithelium. It also resembles delayed chloroform poisoning with its hematogenous jaundice. Tetrachlorethane is seven times as hemolytic for mammalian blood as is chloroform.

POISONING ABROAD

The first case of tetrachlorethane poisoning reported from England was in October, 1914, when a man died of acute jaundice after working in an aeroplane factory in Hendon. He had worked eleven weeks when jaundice developed, and he died after three weeks' illness. The liver was shrunken and green. Legge, chief medical inspector of factories, went there to investigate, and found that the man had been applying to aeroplanes what is called in English and American factories "dope." On examining the other dopers, Legge found ten with evidence of inflammation of the liver. They had worked from three to sixteen weeks before they were taken sick. All had gastric symptoms and jaundice. The next three deaths from what was now called "dope poisoning" were in women, two girls under 20 and a woman over 30. By February, 1916, the Home Office had had reports of forty-three cases, with seven deaths, five in women. The amount of tetrachlorethane in the dopes varied, but British factory inspectors considered even 10 per cent. dangerous.

The dopes were subjected to analysis and animal tests by Wilcox,[5] who also examined the organs of some of the victims of dope poisoning. His results were exactly the same as those of the Germans. Though the English dopes contained benzene, methyl alcohol and acetone as well as tetrachlorethane, Wilcox proved that the last was the cause of dope poisoning. He described, as the distinctive features of this form of hematogenous jaundice in man, a slow, insidious onset; long duration of the disease after the onset of jaundice, longer than in acute yellow atrophy of the liver; absence of marked fever, which distinguishes it from infectious jaundice, Weil's disease; and absence of the degree of anemia that would be found in arsenical jaundice. The jaundice is deeper than that of delayed chloroform poisoning.

The last paper on the subject of dope poisoning in Germany appeared early in 1915. Koelsch,[6] a Landesgewerbearzt of Bavaria, made a study of industrial poisoning from tetrachlorethane, and divided the cases into two classes: (*a*) those with pronounced gastro-intestinal symptoms, nausea, vomiting, cramplike pain, enlarged liver and jaundice; and (*b*) those with slight or no abdominal disturbance, but with various nervous symptoms, headache, paresthesias, tremors of the hands, disordered reflexes and slight paralyses. Two cases belonging to the first group had been diagnosed as lead colic, though there had been no exposure to lead. Other symptoms noted by Koelsch were increased craving for food coincident with loss of weight, and great drowsiness, persisting all of the working hours.

After this, reports from Germany ceased to come, and we have no way of knowing whether or not the advice of the factory inspectors was followed and tetrachlorethane dope forbidden. In England this has been virtually effected. Toxic jaundice from aeroplane dope was made a reportable disease in February, 1916, and brought under the workmen's compensation act. By August, 1916, the Home Office was able to state that dopes free from tetrachlorethane were now obtainable and approved by the War Office and Admiralty. Letters from Sir Thomas Oliver and Dr. T. M. Legge, written in January of this year, assured me that tetrachlorethane dopes were no longer used in British aeroplane manufacture.

THE SITUATION IN THIS COUNTRY

That is the history of dope poisoning in the older countries. In our country, despite the fact that since the war our aeroplane manufacture has increased rapidly, no case of dope poisoning has come to public knowledge. The Bureau of Labor Statistics, knowing the serious trouble that England had experienced, and wishing if possible to forestall it here, asked me to make an investigation of our aeroplane works during the spring and summer of this year. At that time the output of these factories was largely training planes, not war planes. I visited eighteen factories, in the Middle West, Florida, New York State, New England and northern New Jersey. Everything was in a state of experiment and of rapid expansion. Many of the plants were small, temporary structures, and all the doping was done outdoors. Others had doping sheds, open to all the winds. Few were large enough to employ more than one man in doping, and even he would not spend all his time at the work. It was easy to see why, even with the dangerous tetrachlorethane dope, which was still in use in some plants and had been used in several more, no case of toxic jaundice had developed. The exposure had not been long enough or severe enough. Dopers are a shifting body of men. Of fifty-three men interviewed, more than half had worked less than three months.

All these features, however, were already changing. The new factories had doping rooms and were preparing for work on a large scale. It was evident that in the future many more dopers would be employed, and that they would work continuously and in an atmosphere full of dope fumes from the drying wings. The men in charge told me that they knew doping was attended with danger, but for the most part they did not know which were the dangerous compounds in the dope or which variety was the more dangerous. I felt convinced that with conditions as they were in some of the new factories, this winter would see several cases of dope poisoning if tetrachlorethane dopes were to be used; for instead of installing down-draft suction to remove the heavy fumes, several managers were trusting to window ventilation only.[7]

Though I did not find evidence of toxic jaundice among dopers, men who worked with tetrachlorethane dopes had felt the effects of the fumes somewhat. Drowsiness was oftenest complained of, most troublesome early in the morning, and passing off as the day wore on; worse after a holiday, as if the immunity acquired had been lost, and much worse in hot, heavy weather. Some men said they were even sleepier after leaving work than while in the fumes.

There were instances of men being actually overcome by the dope fumes, but these were under exceptional circumstances, such as very hot weather and an unusual rush of work; or the doping was carried on in a greenhouse with the sun beating on the glass roof; or the hemorrhages are due to this secondary infection, and are to be regarded not as scorbutic, but rather as focal complications. Other hemorrhages are truly scorbutic. Scurvy, however, is essentially a disorder characterized by malnutrition and not by hemorrhage, taking months to develop and, from a clinical point of view, frequently latent or subacute.

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[5] Wilcox: Lancet, London, 1915, **1**, 544.

[6] Koelsch: München. med. Wchnschr., 1915, **62**, 1567.

[7] An investigation of aeroplane factories in New York State was undertaken by the State Industrial Commission and entrusted to Drs. Lester Roos and Rosalie Bell. They found one man using tetrachlorethane who showed a slight jaundice, but whose symptoms were chiefly nervous: dizziness, sleepiness, and attacks like alcoholic intoxication.

Where is the much abused pasteurized milk left in this analysis? According to Hess, faulty diet is only one of several factors in the pathogenesis of infantile scurvy. Pasteurized milk, he states, was found to be a contributing cause if it was not fresh — if given from twenty-four to forty-eight hours after pasteurization. From this point of view, he argues, milk pasteurized in the city is preferable to milk pasteurized at the creamery, which reaches the consumer much longer after the heating process. Aging seems to play a greater part in the production of scurvy than heating, whether the milk was pasteurized or raised to the boiling point. It was found that even raw milk on aging loses its antiscorbutic properties.

One may well ask, in the light of what is now being written, whether scurvy is, after all, a distinct entity. Where vague dietary factors and equally indefinable bacterial perturbations in the alimentary tract vie with each other in the genesis of a syndrome, the open mind represents a safe attitude until more definite conclusions can be agreed on.

TRINITROTOLUENE (T. N. T.) POISONING AMONG MUNITION WORKERS

War is a grim teacher; and he must be unobservant indeed, who fails to note the numerous facts of profound scientific importance which its concomitants and consequences have instilled into the mind. This is true in the domain of disease quite as well as in other fields in which science holds sway. For the physician, gaseous chlorin had only the remotest interest at the period when the war broke out. Today poisoning with the gases used like chlorin in warfare offers a serious problem to those entrusted with the management of "gassed" victims.

Not only the actual performances on the field of battle but also the diverse preparatory processes that make possible warfare of the ultramodern sort harbor hitherto unsuspected or underestimated menaces to human health. To take proper cognizance of them means not only to prolong life and alleviate suffering in hundreds of instances, but also to promote efficiency in preparation for the strife by suitable prophylactic or other sanitary measures. Munition workers have come to be a most important element in the struggle to win. Their health has been a source of solicitude in all of the countries concerned; and in the United States, where the difficulties to be encountered are somewhat more recent, we must try earnestly to profit by the experience of those who entered the conflict earlier. Today the possible necessity of protective measures against exposure to lead, tetrachlorethane, nitrous fumes, trinitrotoluene, tetryl (tetranitromethylanilin), fulminate of mercury and certain lubricating and cooling fluids (petroleum products) used with metal products has emerged into distinct prominence.

Early in the war we called attention[1] to the serious and novel danger attending the use of tetrachlorethane as an ingredient of the varnish used to cover the wings of aeroplanes. At least seventy cases of jaundice with several deaths were reported in Great Britain before a substitute for this solvent was introduced into use. The history of the experience with the solvents or "dopes" used in aircraft manufacture has been related by Dr. Alice Hamilton[2] in this issue of The Journal. A new device calling for new modes of production under great stress has suddenly brought to light novel industrial dangers. Far more conspicuous is the problem of poisoning with trinitrotoluene — the T. N. T. of the army and navy vocabulary — which has likewise attained an enormous importance in munitions manufacture.

One commentator has remarked that trinitrotoluene shows itself a splendid antagonist in the resourcefulness of its attack and the variety of symptoms produced. A cardinal symptom is toxic jaundice, which may appear quite suddenly in munition workers or may show such premonitory symptoms as drowsiness, dizziness, depression and dark urine. Dermatitis due to the local action of the explosive sometimes occurs. A toxic gastritis is a far more important symptom. This gastric catarrh makes up part of the so-called minor illness attributable to trinitrotoluene. A discussion of this important subject before the Sections of Medicine, Pathology and Epidemiology of the Royal Society of Medicine in London[3] brought out the fact that the other minor illnesses due to trinitrotoluene are probably thirty times more frequent than jaundice; and as many thousands of workers are employed in the handling of trinitrotoluene, the problems of its toxic effects are of the greatest importance in preventive medicine and the production of munitions for the successful prosecution of the war.

Since trinitrotoluene liberates fumes at a temperature as low as 32 C. (89.6 F.), it has been argued that the poison enters the body by inhalation of nitrous fumes, on the circumstantial evidence that the incidence of its toxic effects varies with the ventilation of the factories. When the circulation of air is defective, and fumes are given off by molten trinitrotoluene, the toxic effects become more frequent, whereas good ventilation is accompanied by freedom from illness. Moore's recent analytic and experimental investigations appear to prove that the skin is the main channel of absorption of trinitrotoluene, and he insists that inhalation of its fumes or of its dust does not play any part. There is some evidence that an oily condition of the hands, such as may result from handling silk bags saturated with petrolatum, favors absorption. Personal susceptibility has some influence in determining the incidence of symptoms, and whether they appear after a short or after a considerable period of work. This is well shown in the case of dermatitis. But the amount of the exposure, or in other words the dose of the poison, is the more important factor in producing the toxic effects.

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[1] Tetrachlorethane, Current Comment, The Journal A. M. A., Oct. 30, 1915, p. 1561.

[2] Hamilton, Alice: Industrial Poisoning in Aircraft Manufacture, The Journal A. M. A., this issue, p. 2037.

[3] The Origin, Symptoms, Pathology, Treatment and Prophylaxis of Toxic Jaundice Observed in Munition Workers, Being a Discussion by the Sections of Medicine, Pathology and Epidemiology of the Royal Society of Medicine (January, 1917), London, Longmans, Green & Co.

Surgeon-General Rolleston[3] has pointed out that the pathologic lesion of the liver found associated with the toxic jaundice of munitions workers is the same as that long familiar as acute yellow atrophy. The process is one of degeneration and necrosis of the liver cells, associated with infiltration and subsequent fibrosis resembling ordinary portal cirrhosis. The incidence of the disease can be overcome not by one precaution alone, but by the combination of several, of which alternation of employment, frequent periodic medical examination, ventilation, and clean working are the chief. Rolleston has thus summarized the prophylaxis of trinitrotoluene poisoning, of which cases are already being reported in this country:[4] In the first place, the absorption of the poison should be prevented by minimizing the opportunities of contact between the skin and trinitrotoluene. Every care must be taken to avoid spilling of the powder on the tables, floors, and the outsides of the shells and bombs. The hands should be kept clean, and freed from adherent trinitrotoluene by a solvent, such as acetone. Similarly, the hair and the underclothing must be kept free from the powder. Periodic alternation of shifts, so as to reduce the exposure to the poison, and prompt removal when toxic symptoms threaten, are essential. Good ventilation, substantial meals, and exercise are important to maintain a good standard of health and to keep the bodily resistance high. The application of prophylactic measures of this order has already resulted most satisfactorily in the munition works of the British Admiralty, where thousands of employees are involved.

The manufacture of trinitrotoluene in this country is mainly confined to a few firms, so that effective supervision can be planned. The loading of shells, on the other hand, is likely to be carried on by any manufacturer possessing the requisite facilities, which are comparatively simple. In a paper on the safe handling of trinitrotoluene, read before the Section on Industrial Hygiene of the American Public Health Service, Surgeon Schereschewsky of the U. S. Public Health Service pointed out that the number of workers involved in loading operations is likely to be much greater than that concerned in the manufacture of this substance. Besides this, he added, long contact with the production of other poisonous nitrated benzene products should have given manufacturers of trinitrotoluene the requisite experience to enable them to handle the manufacture of this substance with safety to the workers concerned. In addition to this, in the manufacture of trinitrotoluene, except at the final sieving and packing operations, the substance is handled either in closed containers or in a moist condition, under which circumstances the risk of poisoning is greatly reduced. In loading operations, on the other hand, there is constant opportunity for nearly every one connected with such work to become the subject of chronic poisoning through either the fumes or the dust of this substance. Valuable practical points have been outlined by Schereschewsky[5] in a recent number of *Public Health Reports* which should be in the hands of every one interested.

CONDITIONS AFFECTING THE FORMATION OF RED BLOOD CORPUSCLES

The normal response of the organism to a loss of red blood corpuscles, such as occurs through hemorrhage, consists in an increased activity of the blood-forming cells of the red bone marrow. New erythrocytes are formed to replace those of which the circulation has been deprived. This corrective mechanism, if it may so be termed, is the wholesome device whereby a harmful diminution in oxygen-carrying capacity of blood is prevented and the necessary factors for proper tissue respiration are restored. Heretofore it has not always been easy to follow the course of a regeneration of red corpuscles or to investigate the process at the seat of their formation, for, as Starling[6] has expressed it, in the confused medley of colorless cells which exist in the bone marrow and are precursors of all the varied corpuscles found in the blood, it is difficult to be certain of the identity of the colorless erythroblasts and to distinguish them from the smaller colorless cells engaged in the bone formation or in the production of leukocytes.

More recently a helpful new method of following the hematopoietic activities of the bone marrow has been devised by the study of the so-called reticulated corpuscles in the blood. When fresh, unfixed blood is treated with solutions of various dyes, such as brilliant cresyl blue, polychrome methylene blue or neutral red, a remarkable otherwise invisible structure is detectable. In suitable prepared specimens a granulofilamentous or reticulofilamentous substance appears in the form of coarse granular particles which are sometimes discrete, but more often occur in threads which are woven into skeins or wreaths of great complexity and fill a considerable portion of the cells. According to Vogel and McCurdy,[7] in the blood of infants these reticulations are found in from 5 to 10 per cent. of the erythrocytes, and in normal adult blood in from 0.5 to 2 per cent. In severe anemias, however, their number is much increased, running as high as 18 or 20 per cent.; while in hemolytic jaundice, which is the condition par excellence for their prevalence, they may occur in still greater proportions. Vogel and McCurdy believe that the filamentous substance is not a preformed structure, but is a precipitation product of the stain. They regard it as an evidence of youth in the cells and not of degeneration. Vogel and McCurdy thus present the significance of the reticulated cells: In conditions in which a severe drain on the erythrocytes is being sustained by a well functionating bone marrow, large numbers of reticulated cells are found; whereas in aplastic cases they may be diminished almost to the point of absence; that is, in a manner somewhat comparable to the behavior of the erythroblasts, the reticulated cells afford a direct insight into the hematopoietic activities of the bone marrow. For clinical purposes they form a more convenient measure of this function than do the nucleated cells, as their percentage relations to the erythrocytes can be more easily and accurately determined, and their enumeration is to be urged as a part of the study of the blood in all cases of severe anemia.

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[4] Martland, H. S.: Trinitrotoluene Poisoning, The Journal A. M. A., March 17, 1917, p. 835. Hamilton, Alice: Industrial Poisons Encountered in the Manufacture of Explosives, ibid., May 19, 1917, p. 1445; Trinitrotoluene Poisoning, Med. and Surg., 1917, **1**, 761.

[5] Schereschewsky, J. W.: Trinitrotoluol: Practical Points in Its Safe Handling, Pub. Health Rep., 1917, **32**, 1919.

[6] Starling, E. H.: Human Physiology, 1915, p. 834.

By enumeration of the reticulated cells as well as by various older modes of investigation, the stimulating effect of loss of blood on the regeneration of blood cells has been put beyond question. Indeed, it appears that the bone marrow functions constantly in supplying new red corpuscles to replace those lost daily in the process of normal blood destruction. How shall we picture the functioning of the active marrow under conditions in which a need of erythrocytes is not imperative, that is, when there is a plethora of them? This is precisely the situation after the transfusion of blood.

Experiments have recently been conducted in the laboratories of the Rockefeller Institute for Medical Research by Robertson[8] to determine whether a diminished activity of the bone marrow can be brought about in animals by plethora produced by repeated small transfusions of blood. Counts of the number of reticulated red cells in the circulating blood were made during the course of the experiments as an index to changes in the activity of the bone marrow. With the development of plethora, the number of reticulated cells in the blood decreased. In the majority of the plethoric animals, this diminution was extreme, and in some instances, reticulated cells practically disappeared from the blood. A comparison of the red bone marrow of these animals with that of normal controls revealed a marked reduction in the content of reticulated cells. After a number of transfusions, there occurred in some of the plethoric rabbits a sudden and marked drop in hemoglobin. The hemoglobin continued to fall until a severe grade of anemia was reached. This was followed by a striking rise in color index. During regeneration the reticulated cells were enormously increased in number.

As Robertson notes, these facts taken together show that the bone marrow is markedly influenced by plethora. There is a very practical application of the findings to the management of certain cases in which transfusion is currently employed. It has been stated that greater judgment is needed in determining the amount of blood to be transfused. Thus Vogel and McCurdy believe it quite possible that too large an amount of transferred blood may be injurious in pernicious anemia, in which transfusion is a valuable form of palliative treatment. The experience of Robertson may account for the diminished bone marrow activity which sometimes occurs after transfusion. In such cases, he explains, there is a marked drop in the number of reticulated cells and other evidence of bone marrow depression; the patient shows no benefit from transfusion, or may grow rapidly worse. The cause of this depression is best explained on the basis that in severe instances of the disease, when exhaustion of the bone marrow is imminent, the stimulus of the anemia is only just sufficient to keep the marrow functioning. A sudden lowering of this stimulus is brought about by the introduction of a large quantity of blood into the circulation, and the result is a fall in the activity of the bone marrow. It follows from this that in pernicious anemia with a feebly reacting bone marrow as indicated by the number of reticulated red cells, small transfusions are preferable to large ones.

Sanitary Waste Disposal Systems for Unsewered Towns and Villages.—Public Health Bulletin 89 of the Public Health Service concerns a sanitary privy system for unsewered towns and villages, and gives details for the construction of sanitary privies which may be applied to existing buildings. A number of towns in various states, particularly in the South, not having sewerage systems, have adopted the sanitary privy system as described in the bulletin. Among them is Tuscaloosa, Ala., which passed an ordinance providing for the installation of this system and regulations for effectively carrying out this method of waste disposal. The ordinance in Tuscaloosa was backed by strong public sentiment and was rigidly enforced. Prior to the installation, there were 1,158 open, insanitary privies. As an indication of the effect of this sanitary measure, it is shown that typhoid fever was reduced from 190 cases and 17 deaths in 1915, the year before the sanitary work was done, to 14 cases with 1 death for 1916. Of the cases occurring in 1916, six gave histories showing that the infection was contracted *outside* of the city.

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[7] Vogel, A. M., and McCurdy, V. F.: Blood Transfusion and Regeneration in Pernicious Anemia, Arch. Int. Med., December, 1913, p. 707.

[8] Robertson, O. H.: The Effects of Experimental Plethora on Blood Production, Jour. Exper. Med., 1917, **26**, 221.

Current Comment

THE SOURCE OF ENERGY IN THE BEATING HEART

It is now generally accepted that although muscular work can probably be performed at the expense of any of the foodstuffs or the three proximate classes of constituents of the body, carbohydrate is the immediate or most readily available source of muscular energy. The respiratory quotient, or ratio CO_2/O_2, would be equal to unity if the entire requirement for energy were satisfied by the oxidation of carbohydrate; that is, the output of carbon dioxid formed would be exactly equal in volume to the oxygen required. As a matter of fact, Benedict and Cathcart[1] found in their extensive studies of muscular work that there is almost always a rise in the respiratory quotient during work. After the cessation of the exercise, the respiratory quotient sinks again. During a "century run" on a bicycle, the respiratory quotient remained at about 0.9 throughout the experiment, indicating that the body's glycogen was being used in goodly measure. An interesting confirmation, so to speak, has been furnished in a quite different manner by Snyder,[2] who has accurately measured the average amount of heat liberated per beat and gram of tissue by the ventricle of surviving hearts. He has calculated the quantity of glucose required to yield the measured calories, and finds it to be essentially equivalent to the amount demanded by the corresponding carbon dioxid production of the beating heart as well as to the amount found by Clark[3] to disappear in contracting hearts. Therefore, Snyder argues, glucose or some carbohydrate of equal heat of combustion is the presumable source of the heat liberated by the beating heart.

PHYSICAL RECONSTRUCTION

In this country prior to the war there were thousands of physically handicapped men who through lack of training were unable to make a living. Unfortunately we have been as prodigal of human brain and brawn as of money and material, and in the years past we have made no systematic attempt at human salvage. The terrible ravages of this war in men and materials acutely emphasize the importance of the work of physical reconstruction and reeducation in its relation to world economy. The time has arrived when conservation has become acutely necessary, conservation not only of material but also of men, and not only of men but also of human energy. The time has passed when we can afford to discard as derelicts those whose capacities do not measure up to our standard of efficiency. Our allies unfortunately "had no precedents to guide" in the care of their injured soldiers. The lessons learned from the experience of all the warring nations are available. Though meager, as compared with the complexity of the problem, these lessons point with precision to one necessity—military control. From every hand comes the advice to hold the soldier until he is prepared to return to work in civil life. Division of duties and authority has in the countries of our allies resulted in discontent and unsatisfactory conditions. This we can avoid because there is yet time for us to evolve a system that will place the responsibility of action where it rightly belongs. Reconstruction is both physical and mental. A large and important phase belongs in the domain of surgery; however, readjustment is not always accomplished by an operation; it is found equally as important that vocational training should be carried on in the hospitals, not only on account of its educational but also because of its therapeutic value. Occupation speeds recovery, idleness retards it. The problem, after all, is to determine the best means to give the man an opportunity, in spite of his disability, to earn a livelihood. The decision of this question should rest with the department of the government charged with the responsibility of the physical care of the soldiers, the department which opens the gate for his entrance into the Army, follows him down that dangerous path of duty, works to restore him when incapacitated, and studies under the most intimate associations his physical and mental abilities—the Medical Department of the Army.

MUSCULAR WORK AND THE BLOOD

At a time when millions of persons are applying their energies to a degree that the world has probably never known before, it is important to understand thoroughly the physiology of muscular exercise. It has long been known that changes occur in the blood as the result of exercise. Muscular work, whether moderate or severe, produces a rise of blood pressure and an acceleration of the pulse. There are alterations also in the composition of the blood. The number of red corpuscles is noticeably increased; and this result appears on first consideration as a most beneficent phenomenon whereby a greater oxygen-carrying capacity is imparted to the circulating fluid at a time when the demand for oxygen in tissue respiration is decidedly augmented. The explanation of this enrichment of the blood in red corpuscles as an incident of muscular exercise has not been uniform. Some authors[1] have explained their results on the basis that there are masses of corpuscles stored away in certain organs that may be liberated in time of need, while Lamson[2] believes that the number of corpuscles is altered by a splitting of old corpuscles or a production of new ones, as well as by storage in the liver. More recently, Scott[3] of the University of Minnesota has come to the conclusion that the capillaries of special organs do not thus contain large numbers of corpuscles that may be liberated at any moment and pass into the general

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[1] Benedict, F. G., and Cathcart, E. P.: Muscular Work, Publications of the Carnegie Institution of Washington, 1914, No. 187.

[2] Snyder, C. D.: On the Heat Liberated by the Beating Heart, Am. Jour. Physiol., 1917, **44**, 421.

[3] Clark, A. H.: Jour. Exper. Med., 1916, **24**, 621.

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[1] Hawk, P. B.: Am. Jour. Physiol., 1904, **10**, 384. Schneider and Havens: Am. Jour. Physiol., 1915, **36**, 239, 380.

[2] Lamson: Jour. Pharmacol. and Exper. Therap., 1915, **7**, 169; 1916, **9**, 129.

[3] Scott, F. H.: Factors Influencing the Interchange of Fluid Between Blood and Tissue Spaces, I, Blood Pressure, Am. Jour. Physiol., 1917, **44**, 298; II, Muscular Activity, ibid., 1917, **44**, 313.

circulation. He has compared the capillary blood of various organs with that in the larger blood vessels, and has always found them practically identical in hemoglobin content. Consequently, Scott argues, one may consider any alteration in the hemoglobin value or corpuscle mass found within a few minutes as due to the passage of fluid out of the blood to the tissues, or vice versa. Scott has demonstrated that the hemoglobin content of the blood is rapidly modified by any alteration in blood pressure, a rise of pressure leading to an increase of hemoglobin, and a fall to a decrease. These results can be explained only by the forcing of fluid by the increased pressure out of the blood tissue spaces, and the passage of fluid back from the tissue spaces to the blood when the pressure is lowered. In view of the fact that a rise in blood pressure invariably attends muscular work, the increment in corpuscles can thus be explained. Furthermore, there is an increase in the water content of muscle as a result of contraction, if the blood is circulating through it. Thus a passage of fluid from blood to muscles comes about, whereby the alterations in blood composition are further facilitated.

EXPERIMENTAL SCURVY—A HISTORICAL NOTE

The credit for demonstrating and describing the production, in animals, of a condition resembling scurvy in man is usually ascribed to Professor Holst and his co-workers in Christiania, Norway. In 1912, he published a report of his now classic experiments on the symptoms and pathologic lesions produced in guinea-pigs by means of a diet of cereal grains.[1] His observations have frequently been repeated, notably by Baumann and Howard, H. B. Lewis, Jackson and others in this country.[2] Hess[3] has recently pointed out the little known fact that comparable findings of typical symptoms in guinea-pigs were reported much earlier by one of America's foremost comparative pathologists. In a bulletin on "Bacilli in Swine Disease," published by the Bureau of Animal Industry, 1895-1896, Theobald Smith says (p. 172): "When guinea-pigs are fed with cereals (it has been observed for some years in this laboratory), with bran and oats mixed, without any grass, clover or succulent vegetables, such as cabbage, a peculiar disease, chiefly recognizable by subcutaneous extravasation of blood, carries them off in from four to eight weeks." Thus another instance of keen scientific observation is added to the record of the discoverer of the transmission of infectious disease through the intermediation of insects, and the original observer of the fundamental phenomena of what is now termed anaphylaxis.

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[1] Holst, H., and Froelich, D.: Ztschr. f. Hyg. u. Infektionskrankh., 1912, **72**.

[2] Baumann, Louis, and Howard, C. P.: Am. Jour. Med. Sc., 1917, **153**, 650. Jackson, Leila, and Moore, J. J.: Jour. Infect. Dis., 1916, **19**, 478. Jackson, Leila, and Moody, A. M.: Ibid., 1916, **19**, 511.

[3] Hess, A. F.: Infantile Scurvy, V. A Study of Its Pathogenesis, Am. Jour. Dis. Child, November, 1917, p. 337.

Progress.—Progress is not an accident, not a thing within human control, but a beneficent necessity.—Herbert Spencer.

Medical Mobilization and the War

PHYSICIANS AND THE SELECTIVE SERVICE

The Journal has been flooded with inquiries as to whether a physician may apply for a commission in the Medical Reserve Corps after December 15. The questions arose from the general announcements in newspapers that, according to the Selective Service Regulations, no registrant might enlist voluntarily after that date. Section 151 of the new Regulations states:

> "(c) Any registrant at any time, regardless of classification and order number, may be commissioned in the Army, Navy, or Marine Corps, or appointed an army field clerk, and thereafter, on presentation by the registrant to his Local Board of a certificate of his Commanding Officer stating that he has been so commissioned or appointed, such certificate shall be filed with the Questionaire and the registrant shall be placed in Class V on the ground that he is in the military or naval service of the United States."

The effect of placing in Class V is to exempt from the draft. It is, of course, obvious that a physician who has received a commission in the Medical Reserve Corps is subject to the orders of the Surgeon-General and must accept active duty whenever he is ordered into service.

It is desirable from the standpoint of those physicians who are registered that they act promptly. If a physician is ordered into service by his draft board before receiving his commission, he must go to the cantonment with his quota and will be held there as a private until the commission and orders to active duty are received. In connection with the first call, many physicians were in this condition, and numerous letters have been received from physicians who were serving at privates' wages in the cantonments, awaiting action on applications for commissions made through the division commander of the Medical Department after the physicians arrived in camp. The same delay is likely to occur in the future, so it behooves those who desire commissions to act promptly. Application blanks and general information will be sent by The Journal on request, accompanied by a self-addressed stamped envelope.

DEPENDENCY

A great many physicians have written to The Journal asking whether the rules governing dependency would apply to physicians as well as to others registered under the Selective Service. According to the Selective Service Regulations, "it is not the intent of the law to deprive the dependents, whom the law and regulations are designed to protect, of a reasonably adequate support. No definite degree can be given to the meaning of the term 'reasonably adequate support' as used in the classification rules and schedule. The adjustment of these rules must be left to local boards." The local board must, of course, consider the physician in the same light as any other registered man. It cannot consider him as a commissioned officer until his application has been accepted and the commission has been issued to him.

AMERICAN RED CROSS IN FRANCE

The work of setting in motion the activities of the American Red Cross in France is described by Paul U. Kellogg in the *Survey*, Nov. 24, 1917. Paris is the center of the work, at which place the commissioner and a number of deputies arrived, June 12, 1917. This is a working organization to project among a friendly people the instruments through which the funds raised in the United States could be brought to bear wherever and in whatever ways they would count for the most. In January, 1918, or six months from the beginning, it is expected that about 1,000 persons will comprise the executive force. There is to be a string of warehouses along the front extending from Dunkirk to Dijon, with reserve warehouses back of them and in the devastated areas, floating warehouses in Belgium, ready for any advance in the lowlands, great storage centers in Paris, receiving houses at all ports of entry, and purchase and supply stations in Great Britain, Switzerland, France, Spain and Portugal, as well as in America. The distribution of hospital supplies has been coordinated in a single agency, reaching 3,617 hospitals in 1,356 towns. Plants for the manufacture of special medical supplies, bureaus for the exchange of surgical methods, and reserves to stand back of the medical department of the American Army are being built up by the military affairs department, which is also establishing a canteen system that eventually will reach 1,500,000 French soldiers every month.

The duties of the American Red Cross in France are set forth as follows: First, to serve the Army of the United States; second, to serve the sick and wounded of the allied armies, and third, to give such general assistance as it can to the French people.

FROM AN M. R. C. IN FRANCE

The following letter is from a major in the Medical Reserve Corps, U. S. Army, who has charge of one of the base hospitals in France. The letter was personal and not for publication, but some parts of it are so interesting that they are reproduced.

We are still in the same location "Somewhere in France," and continue to carry on in this large hospital with its continuously increasing amount of work. It is very gratifying to be able to report that our relationship with the good British medical officers and authorities continues to be most cordial, with surprisingly little friction.

We have now been here long enough to take stock of the attitude of the medical officers coming from civil life and of their adaptability to do military surgery. The very loyal support that the medical officers of this organization have given to us throughout our association has been extremely pleasing. One notices a striking contrast to the friction that sometimes one observes in organizations of a like character in civil life.

All of the officers are accepting the necessary military control and discipline, and are coordinating in an intelligent and most satisfactory manner. They all seem to be able to forget their individual desires and conveniences, and to make their own opinions subservient to the direction of the people in higher authority.

Judging from our experiences, I believe it can be said without fear of contradiction that the men in the Medical Reserve Corps are rendering a splendid service and showing a disposition to work in perfect harmony with the Army Medical Corps. Obviously, it is necessary to have the most perfect accord and cooperation, in order to secure the most adequate organization to carry on the medical and surgical work in this great conflict.

I feel that the attitude and adaptability of the Reserve Corps officers will make the correlation relatively simple. Each and every one of the men in this organization has learned the necessity of military rules and regulations very rapidly, and I am sure that our good commanding officer, Col. C. C. Collins, has nothing of which to complain in this direction. Possibly some of this is due to his thoughtful consideration and diplomatic method of dealing with the situation. Throughout the whole organization there seems to be a realizing sense that we have a hard job to do and that it must be done with cheerfulness and cooperation.

Naturally, it is every good American's desire to go behind his own lines when the occasion arises for this necessity. At present it would appear that this eventually will probably occur.

I wish it were permissible to tell you how many patients we have treated at this hospital during the month of October. I can assure you that the number was exceedingly large. The medical personnel of this organization is having an opportunity for a wide and unusual experience in war surgery, and is responding to it in a most satisfactory manner, showing better surgical judgment each day.

We have now been here nearly six months, and I think our experience justifies us in stating that there is very little in war surgery that is not covered by the general surgical principles as laid down in civil life. One of course has to deal with pathologic conditions a little more complicated, because of the more serious and virulent types of infection with which we are brought in contact. There is a certain psychology in war time, I think, which makes all men somewhat more radical; and this applies to the medical department as well as to other branches of the service. In this connection I find it is necessary to exercise a little control and restraining influence in the direction of conservatism regarding the saving of limbs and the preservation of tissues that are sometimes sacrificed by the too extensive excision of infected areas.

I think we are all agreed that the time that elapses between the infliction of the wound and the first adequate surgical treatment is an all-important factor. I should like to lay emphatic stress on this essential element of time in the treatment of the wounded, believing that in the organization of the surgical and medical work for the American Army this should be one of the fundamental considerations; and to this end, men familiar with large transportation problems should be consulted in developing a system for rapidly conveying the wounded to a place where adequate surgical treatment can be instituted.

I am very much impressed with the French so-called "perpendicular" plan of organization. This means that the wounded man is under the direction of the same organization from the time he is wounded until he reaches the ultimate base in the center of the country. This permits a single and unified method of treatment throughout his illness and convalescence.

I am convinced that any method which does not allow for a cooperative control of the patient as he passes from one hospital to another will not give the best results.

The Journals continue to come through more promptly than any other mail we receive. The reason for this, I do not know.

NEWS OF THE CANTONMENTS

Thirty-First Division, Camp Wheeler, Macon, Ga.

MEASLES AND PNEUMONIA

The measles epidemic is practically over, less than 100 of these patients now being in the hospital. The number of new cases of pneumonia grows somewhat less, but is still uncomfortably high. The mortality rate has also increased to about 18 per cent. It is believed that many more Type I and II cases are being found than formerly. The precautions against pneumonia in the camp are now about the same as against any other infectious disease. They include compulsory airing and sunning of tents; use of spit boxes with sand wet with cresol; washing of all tent floors with cresol solution daily; prohibiting spitting except in spit boxes, and isolation of all convalescent patients. Heavy clothing and three blankets have been supplied in all cases. Major Zinsser is making a careful epidemiologic study of the disease. While the partial grouping of cases points to infection, there can be no doubt that poor physique and low vitality are important predisposing factors.

ONE HUNDRED AND SIXTH SANITARY TRAIN

It is believed that the One Hundred and Sixth Sanitary Train is more nearly ready to take the field than any other organization in the division.

Captain Cupper of the British infantry, detailed as instructor in bombing in the division, gave a most interesting talk to the officers of the Medical Corps at their meeting last Monday afternoon. The captain has promised to lecture to the noncommissioned officers of the train at an early date, giving them the value of his long experience at the front.

New sanitary measures have been instituted tending toward the stamping out of the pneumonia epidemic. Not more than five men are allowed in each tent. Tents are mopped out with cresol solution each morning. Two sputum boxes to each tent and sputum boxes in each company street containing cresol solution are required. Guards are maintained at all times to see that tent doors are open and that these sanitary measures are enforced.

The ill from the sanitary train are handled similarly to the ill of a regimental infirmary. Each field hospital handles the dispensary one month at a time. Field Hospital No. 121 was relieved by Field Hospital No. 122, December 1, and will care for the ill for a period of one month.

We still have hopes of enjoying some day a hot bath, when the intricate heating system is finally installed.

BASE HOSPITAL NOTES

The roentgen-ray department is having a series of unusually interesting cases.

Frames for field hospital tents have been made and installed, and board walks from the corridors and tents are being made.

Major Hans Zinsser of the Surgeon-General's Office is here doing special epidemologic work with reference to pneumonia and meningitis. He is charting the camp and studying the situation from the standpoint of contact infection. He instituted a campaign against the careless disposal of sputum. Only five men are allowed to occupy each tent among the enlisted men, by direction of the Surgeon-General.

Lectures are delivered each night to the staff by one of the chiefs of service. These are proving both interesting and instructive. There is in process of evolution a recreation room for the use of the enlisted men.

Thirty-Fifth Division, Camp Doniphan, Fort Sill, Okla.

DISEASE INCIDENCE

Rain and colder weather materially increased the number of cases showing involvement of the respiratory tract, and "colds" are common. For the week ending November 30, the number of cases of pneumonia had increased to forty-nine. Quite a number of these cases are developing as a complication to measles, of which there are at present eighty-three cases in camp. There were five deaths during the week, four following pneumonia and one due to tuberculous meningitis. The necropsy in the cases of pneumonia following measles has quite uniformly shown the streptococcus. In all of these cases a marked fibropurulent pericarditis with effusion was found. Thus far, no new cases of cerebrospinal meningitis have developed, and the camp has only two of these cases to record at present. Prompt isolation of all contacts, and energetic treatment of these contacts with dichloramin-T in an oily medium, as furnished by the office of the Surgeon-General, appear to control the situation satisfactorily. The use of a plain oil spray seems to give equally good results, and has the advantage that it can be more easily applied, since it is less viscid than the oil to which dichloramin-T has been added. The oil spray is used every two hours in a de Vilbiss atomizer.

The transfer of patients into the new base hospital is now well under way. Practically all of the medical patients have already been transferred.

As soon as the operating rooms and the rooms for the specialists and the laboratories have been completed, the transfer of all patients from the post hospital, where they have until now been accommodated, will be made. It is expected that this will be effected during the ensuing week.

PERSONAL

Lieut. John A. Walker, M. R. C., of the base hospital, has been ordered to Oklahoma City, where he will be given a special course in orthopedic surgery.

Eightieth Division, Camp Lee, Petersburg, Va.

THE SANITARY TRAIN

Work in the sanitary train is progressing satisfactorily. The field hospital section is under the direction of Capt. Elliott B. Edie, M. R. C., and the ambulance section under the direction of Capt. Burr Ferguson, M. R. C. The regular course of instruction for medical officers and enlisted men is being carried on daily. The first hike was made, December 4, when the entire train marched to beyond Prince George Court House, where dinner was cooked on field ranges. Lieutenant-Colonel Rhoads, the division surgeon, visited the officers and men while at dinner and expressed himself as satisfied with the first practice march. There were several officers and men with sore feet, and Colonel Rhodes spoke to the officers and men on the care of the feet while on the march.

The sanitary train has an excellent football team, and has played a number of games with other organization teams at Camp Lee, and one outside game. Lieut. Joseph M. Barsky, M. R. C., Three Hundred and Twentieth Ambulance Company, and Lieut. James W. McPheeters, M. R. C., Three Hundred and Eighteenth Ambulance Company, play.

The Richmond Red Cross recently presented twelve standard ambulances and three motor trucks to the Three Hundred and Nineteenth Ambulance Company, and other equipment valued at $40,000. This company was organized in Richmond, and is under the command of Capt. Charles Howard Lewis, M. R. C., of that city.

December 4, Lieut. O. W. Budd of the Three Hundred and Twentieth Infantry gave an illustrated talk to the officers of the sanitary train on ambulance work in France. Lieutenant Budd has served with the American Ambulance in France and gave the officers a number of practical pointers. Lieutenant Budd told the officers that it was necessary for the ambulances to have wooden sides instead of canvas, and that ambulances in France have been modified to allow stretchers to be easily pushed in instead of requiring the use of a hook to hold the upper tier of stretchers. The lecture was most practical, and was appreciated by all the medical officers.

THE WORK OF SPECIAL NEUROPSYCHIATRIC BOARDS

The neuropsychiatric board under the direction of Major James R. Moore, M. R. C., had 179 cases referred to it during the months of September, October and November. Among these were found 45 cases of nervous disease, 10 psychoneuroses, 22 cases of alcoholism, 6 drug addicts and 33 mentally deficient. Eighty-four men were discharged on account of disability.

TUBERCULOSIS

The tuberculosis board, under the direction of Capt. George D. Hamlen, M. R. C., has begun a complete examination of the entire command. The men of the Three Hundred and Fifth Engineers have all been examined, and the number of active tuberculosis cases found approximates 1 per cent. Prior to the work of the board, 108 white and forty-seven colored men were rejected for active tuberculosis.

ORTHOPEDIC WORK

Capt. James T. Rugh, M. R. C., reported, December 4, to instruct regimental surgeons on the care of the feet and the prevention of orthopedic defects. At the regular weekly clinical meeting held at the base hospital, December 6, Captain Rugh gave a most instructive lecture on the anatomy and mechanism of the foot and the treatment of minor defects. The lecture was much appreciated by all the medical officers present.

GENERAL HEALTH CONDITIONS

During the past five week there have been 338 cases of measles and 421 cases of mumps, the majority of the cases being confined to one regiment. As a result of these diseases, the noneffective rate during this period has gradually increased from 1.2 per cent. to 3.8 per cent. Except among the colored troops, the venereal disease rate has been low; but over 90 per cent. of all the cases occurred prior to enlistment.

PERSONAL

Lieut. William J. Robbins, M. R. C., was thrown by a bucking bronco, November 25, and sustained a fracture of the neck of the femur.

Lieut. Romanus A. LaGrinder, S. C., N. A., medical supply officer, has been promoted to captain and ordered to Newport News, Va. His place has been taken by Capt. Rush Cameron, S. C., N. A.

Capt. E. J. Tucker, S. C., N. A., has been at camp for two weeks to study the water supply and sewage disposal system.

Capt. Lauren Thomas, M. R. C., has been ordered to his home.

Major Linsly R. Williams, M. R. C., delivered the Harvey Lecture at the Academy of Medicine in New York, November 24. The subject of the lecture was "Medical Problems of the War."

Lieut. Benjamin C. Cliff, M. R. C., was married, December 2, at Richmond to Miss Earline Eugenia Hart.

Major Henry P. Carter, M. C., U. S. Army, divisional sanitary inspector, has been transferred to Camp Logan, Texas. Major Carter left Camp Lee, December 4, and will be much missed by the medical officers of the division.

Eighty-Fourth Division, Camp Zachary Taylor, Louisville, Ky.

Louisville has felt wintry blasts since the night of the 6th, when 17 inches of snow fell, burying the camp in a white blanket. Most of the building roofs have not been equal to the strain and but few have escaped leaks which have been very inconveniencing to say the least. The barracks have been kept warm by the large drum stoves by which they are heated, but the patients in the base hospital have in many wards suffered keenly from the cold. For some reason the steam pipes leading to the various units, not connected by corridors, are carried on stilts 8 or 10 feet in the air, and with no return line for water of condensation and zero weather, those buildings farthest away from the power plant, several city blocks, are practically without any heat.

Snow has drifted through cracks around the ventilators in barracks and canteens, and caused considerable damage when it melted. A stock of cigarettes in the canteen of the Three Hundred and Thirty-Fourth Infantry, worth several hundred dollars, was ruined.

Railroads and city cars refused to accept shipments of milk for the camp on account of the snow blockades, and Lieutenant Shaw, adjutant at the base hospital, had to requisition four Quartermaster Department four-mule teams to haul 40 gallons of milk from the city to the patients.

The failure of the city railway to clear away the snow from the tracks leading to the camp and necessary discontinuance of car service caused great inconvenience of the thousands of soldiers on leave during the afternoons of last

Saturday and Sunday. Jitney busses charged $1 and $2 for the trip from Louisville to the camp.

Four hundred picked men from various organizations have been transferred to the Aviation Camp at San Antonio, Texas.

Dr. Clarence H. Ketterer of Butler, Pa., has been detailed to Camp Zachary Taylor as a junior member of the physical examining board and medical member of the board, Aviation Section of the Signal Corps, and has reported to division surgeon Col. John H. Allen. From this detail it is believed that applicants for the officers' training school for aviators are to be examined here. Authority has been received to accept 200 applicants possessing certain qualifications as students in the Aviation Corps. Applicants for this service are more rigidly examined than for any other branch. A revolving chair has already been received and is placed in the head surgery section of the base hospital.

War Department orders have been issued prohibiting the publication of rosters of officers or men during the period of the present emergency.

Six hundred and sixty-two soldiers have been discharged by the special tuberculosis board, of which Captain Lichty of Cleveland is president. A little over half of the division has been examined by the board.

NEW SANITARY REGULATIONS

Major Poust, the division sanitary officer, as the result of recent inspections of the camp, has issued a new form of instructions to improve sanitary conditions at the cantonment. The bakers are required to manicure their nails carefully each day, and before they go on duty there will be an inspection of hands by commissioned officers.

In regard to sleeping arrangements in the barracks, the beds are to be stationed so that every other man will sleep with his feet opposite the head of the man alongside. This will allow a space of 5 feet between heads and greatly reduce the chances of the spread of respiratory diseases. A certain number of windows in every barrack are to be kept open during the night, and a commissioned officer will be required to make inspections of the barracks twice each night to see that the order is being enforced.

SCHOOL FOR HYGIENE AND SANITATION

The school for hygiene and sanitation has been established, the course begining December 3. A medical officer has been appointed commandant of the school. Unlike most of the divisional schools, only commissioned officers will be required to take the course. The instruction will consist of sanitation in garrison, camp, on the march and in campaign.

BASE HOSPITAL ACTIVITIES

There are 730 patients in the base hospital, between 450 and 500 being purely medical. New wards have been established, one for hookworm patients and one each for active and suspected tuberculosis patients. Specimens from each patient in the hospital have been examined for hookworm, and eighteen positive cases have been found. These men will be vigorously treated and reexamined before being discharged.

With the arrival of the last 35 per cent. of the draft, 42,000 men will be in the camp. The quarters are adequate to receive them, and there are plenty of clothes and food.

ILLNESS IN MEDICAL STAFF

One officer and one nurse were admitted to the hospital, December 2, with measles.

Eighty-Ninth Division, Camp Funston, Fort Riley, Kan.

Everything is running smoothly in the Eighty-Ninth Division. Transfers from one branch of the service to another have about been completed. This week the colored regiment of the division was taken over by the Ninety-Second Division. The total number of whites rejected to date is 615, colored 51, grand total 666. There are at present thirty-seven rejections pending final action. One hundred and thirty-seven of these rejections were for pulmonary tuberculosis. This list is not the list of the medical examiners alone, for many men have appeared for examination on their own behalf. Not long ago a general order was issued, granting each man the right of reexamination if he believed his case had not been given proper attention.

The detention camp, capacity 2,500 men, built half way between this camp and Fort Riley, is now in full operation. The need of such a camp in as large a command as this is apparent, when one learns that it cuts down the noneffective number by one third.

DISEASE CONDITIONS AMONG TROOPS IN THE UNITED STATES

Extracts from Telegraphic Reports Received in the Office of the Surgeon-General for the Week Ending Nov. 30, 1917

1. Total strength of troops in United States as reported.....1,051,424
Annual admission rate per 1000 (disease only).......... 1,423.6
Non-effective rate (all divisions) 37.4
2. National Guard, strength (divisions in United States).... 400,115
Annual admission rate per 1000 all divisions (disease only) 1,448.6
Non-effective rate all divisions (all causes) 43.9
Divisions showing admission rate for disease higher than average: Camps Bowie, Cody, Kearny, Wheeler, Doniphan, Shelby and Beauregard.
Divisions showing non-effective rate all causes higher than average: Camps Bowie, Beauregard, Kearny, Shelby, Wheeler, Cody, MacArthur, and Sevier.
3. National Army, strength (divisions in United States)......433,951
Admission rate per 1000 all divisions (disease only)...... 1,423
Non-effective rate all divisions (all camps)............... 32.5
4. Venereal Disease:
Annual admission rate Regulars in United States 97.4
Annual admission rate National Guard (Divisions in U. S.) .. 100.7
Annual admission rate National Army (Divisions in U. S.) .. 104.3
5. Number of Cases of Pneumonia 438
Highest number in any one division, Bowie (36th Div.)..... 166
Number of cases of meningitis 57
Highest number in any one division, Funston (89th Div.)... 12

6. NEW CASES OF SPECIAL DISEASES REPORTED DURING THE WEEK ENDING NOV. 30, 1917

Division	Pneumonia	Dysentery	Malaria	Venereal	Paratyphoid	Typhoid	Measles	Meningitis	Scarlet Fever	Strength of Command
27th, Wadsworth..	2	...	...	367	...	...	....	...	...	31,725
28th, Hancock.....	...	...	...	36	...	1	....	...	...	28,671
29th, McClellan....	1	...	...	16	...	...	7	2	3	25,820
30th, Sevier........	68	...	...	12	...	...	344	3	...	27,337
31st, Wheeler......	112	...	2	26	...	...	109	2	...	23,046
32d, MacArthur..	...	...	...	9	...	5	83	...	...	26,791
33d, Logan.......	17	1	2	87	...	...	9	...	...	32,883
34th, Cody........	5	...	...	15	...	...	254	1	...	25,633
35th, Doniphan....	31	...	...	55	...	...	121	1	5	25,601
36th, Bowie........	166	...	1	38	...	...	454	8	...	25,566
37th, Sheridan.....	3	...	...	10	...	...	68	3	1	24,167
38th, Shelby.......	12	...	...	26	...	...	352	6	...	28,823
39th, Beauregard..	16	...	9	9	...	...	319	3	...	23,214
40th, Kearny......	3	...	...	20	...	...	124	1	...	24,440
41st, Mills.........	11	...	...	49	...	...	61	...	4	26,335
76th, Devens.......	...	...	...	23	...	...	5	...	...	27,791
77th, Upton.......	2	...	...	23	...	...	5	...	...	24,646
78th, Dix..........	3	1	...	105	1	...	....	...	1	20,311
79th, Meade.......	5	...	...	3	...	...	27	...	...	32,861
80th, Lee..........	10	1	1	244	...	...	101	2	2	35,141
81st, Jackson.....	16	1	...	106	...	...	135	7	...	17,227
82d, Gordon......	...	...	...	61	...	...	82	...	...	34,100
83d, Sherman.....	5	...	...	22	...	...	6	1	2	32,503
84th, Taylor......	1	...	...	20	...	...	116	...	...	23,818
85th, Custer......	...	...	...	7	...	...	32	...	1	26,421
86th, Grant.......	3	...	...	8	...	...	5	...	...	32,192
87th, Pike........	38	1	44	39	...	...	236	...	66	25,326
88th, Dodge.......	13	...	...	33	...	...	20	...	4	18,211
89th, Funston.....	10	...	...	14	...	...	189	12	...	25,603
90th, Travis.......	27	...	1	150	...	...	....	...	...	30,076
91st, Lewis........	14	1	2	33	...	...	61	5	4	37,105

7. ANNUAL RATE PER THOUSAND FOR SPECIAL DISEASES

	Regulars, U. S. Army, in U. S. only, 1916	Regulars in U. S., Week Ending Nov. 30, 1917	National Guard, All Camps, Week Ending Nov. 30, 1917	National Army, All Camps, Week Ending Nov. 30, 1917	American Expeditionary Forces, Week Ending Nov. 30, 1917
Pneumonia............	2.59	9.3	36.5	17.6	14.2
Dysentery............	3.97	0.0	0.1	0.5	0.4
Malaria..............	12.52	0.2	1.8	5.7	0.0
Venereal.............	91.00	97.4	100.7	104.3	75.8
Paratyphoid..........	0.31	0.0	0.0	0.1	0.0
Typhoid..............	0.21	0.2	0.7	0.0	0.0
Measles..............	20.29	24.0	299.5	123.4	60.3
Meningitis...........	0.29	0.2	3.8	3.2	3.8
Scarlet fever........	0.59	5.0	1.6	9.5	3.0

Dec. 7, 1917

National Guard, strength (divisions in United States).......399,262
Annual admission rate per 1,000 (all divisions, disease only) 1,847.5
Non-effective rate (all divisions, all causes) 45.8
Divisions showing admission rate for disease higher than average: Camps Bowie, Cody, Kearny, Wheeler and Doniphan.

Divisions showing non-effective rate higher than average: Camps Bowie, Beauregard, Kearny, Shelby, Wheeler, Cody, MacArthur and Sevier.

National Army, strength (divisions in United States) 437,414

Annual admission rate per 1,000 (all divisions, disease only) 1,774.8

Non-effective rate (all divisions, all causes) 36

Divisions showing admission rate for disease higher than average: Camps Travis, Funston, Jackson, Pike, Dodge, Dix and Zachary Taylor.

Divisions showing non-effective rate all causes higher than average: Camps Funston, Travis, Pike, Jackson, Zachary Taylor, *Dodge*, *Lewis* and Lee.

Venereal Disease:

Annual admission rate National Guard (divisions in U. S.)... 77.1

Annual admission rate National Army (divisions in U. S.) ... 80.1

National Guard Divisions having rate above average: Camps Hancock, Bowie, Logan, Doniphan and A. L. Mills.

National Army Divisions having rate above average: Camps Upton, Lee, *Gordon*, Jackson, Dodge and Dix.

Number of cases of pneumonia 845

Highest number in any one division ....(36th Division) 464

Number of cases of meningitis 77

Highest number in any one division ....(81st *Division*) 16

6. NEW CASES OF SPECIAL DISEASES REPORTED DURING THE WEEK ENDING DEC. 7, 1917

Division	Pneumonia	Dysentery	Malaria	Venereal	Paratyphoid	Typhoid	Measles	Meningitis	Scarlet fever	Strength of Command
27th, Wadsworth..	3	...	...	22	...	...	19	...	...	31,635
28th, Hancock.....	1	...	...	45	...	1	1	1	...	25,575
29th, McClellan....	5	...	...	11	...	...	22	...	2	26,879
30th, Sevier........	3	...	1	33	...	1	184	1	...	27,337
31st, Wheeler......	76	1	2	34	...	...	106	3	...	23,355
32d, MacArthur..	2	...	...	22	...	9	153	...	...	26,078
33d, Logan........	11	...	1	82	...	...	33	...	....	33,630
34th, Cody..........	17	...	...	10	...	...	311	...	...	23,521
35th, Doniphan....	21	...	1	58	...	...	285	2	2	25,001
36th, Bowie........	464	...	...	154	...	2	814	15	...	25,338
37th, Sheridan.....	6	...	...	16	...	6	56	...	4	24,318
38th, Shelby.......	30	...	1	31	...	...	223	6	...	27,233
39th, Beauregard..	5	...	2	6	...	...	148	6	...	23,193
40th, Kearny......	13	...	...	6	...	...	279	7	...	24,354
41st, A. L. Mills...	18	...	...	62	...	...	116	1	1	25,581
76th, Devens.......	...	...	1	34	...	...	13	...	...	27,732
77th, Upton.......	2	...	...	40	...	...	18	...	...	25,287
78th, Dix..........	...	...	1	109	...	2	2	...	...	20,559
79th, Meade.......	4	...	...	8	...	...	52	...	...	33,737
80th, Lee...........	13	...	...	87	...	...	169	1	1	35,172
81st, Jackson.....	41	...	...	98	...	...	133	16	...	18,440
82d, Gordon......	5	...	...	64	...	...	164	...	...	33,352
83d, Sherman.....	7	...	...	46	...	...	11	...	2	32,573
84th, Taylor.......	5	...	1	12	...	...	140	...	...	23,327
85th, Custer.......	1	...	...	23	...	...	19	...	...	24,893
86th, Grant........	2	...	...	9	...	...	6	...	...	22,769
87th, Pike.........	30	2	6	21	...	...	327	4	71	29,542
88th, Dodge.......	6	...	...	31	...	...	79	...	3	15,659
89th, Funston.....	8	...	...	17	...	1	221	9	2	27,346
90th, Travis.......	41	...	1	41	...	...	....	...	...	29,672
91st, Lewis.......	5	...	...	35	...	...	....	5	3	37,035

ORDERS TO OFFICERS OF THE MEDICAL CORPS

To Buffalo, N. Y., and Grand Rapids, Mich., to inspect properties offered as sites for hospitals, and on completion to his proper station, Major EDGAR KING.

To Baltimore, to command *U. S. Army General Health Hospital* No. 7, now being organized at Roland Park, that place, Lieut. GEORGE C. DUNHAM.

To Fort Riley, and report in person to the commandant, M. O. T. C., that post, for duty as commanding officer of evacuation hospital to be organized at that place, *Lieut.-Col.* HORACE D. BLOOMBARGH.

To Camp Jackson, Columbia,, S. C., and *to Asheville, N. C.*, to inspect Kenilworth Hotel, at that place, in regard to its suitability for hospital purposes, Col. HENRY C. FISHER.

To Erie, Pa., to conduct investigations on the efficiency of sterilizing apparatus and disinfectors at that place, and on completion to his proper station, Lieut.-Col. EDWARD B. VEDDER, Washington, D. C.

To report in person to the Surgeon-General of the Army, for duty in connection with the organization of a General Hospital at Lakewood, N. J., Col. JOSEPH H. FORD.

To Camp Bowie, Fort Worth, Texas, to investigate and report on the disease conditions at that camp, and return to his proper station, Col. WILLIAM F. LEWIS.

To Linda Vista, Calif., and report in person to the commanding general, Fortieth Division, Camp Kearny, that place, for duty as commanding officer of the base hospital at that camp, Lieut.-Col. FRED W. PALMER.

To Louisville, Ky., and report in person to the commanding general, *Eighty-Fourth Division*, Camp Taylor, that place, for duty as commanding officer of the base hospital, Lieut.-Col. WILL L. PYLES.

To Philadelphia, Pa., and *New York, N. Y.*, to inspect moving picture films and anatomic specimens for the Army Medical Museum, Washington, and return to his proper station, Col. WILLIAM O. OWEN.

ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

Alabama

To Camp Greenleaf, Fort Oglethorpe, for *instruction*, Lieuts. WILLIAM L. WAITES, Akron; JESSE A. GOODE, Albertville; JAMES A. CAMPBELL, Atmore; JOHN P. JONES, Camden; WILLIAM E. KIMBROUGH, Jr., Chatom, Washington County; HOSEA F. DOWNS, Clanton; KOSSUTH R. CAMMACK, Evergreen; CLAUDE G. GODARD, Fairhope; Mac McLENDON, Fort Mitchell; JOHN R. MORGAN, Heflin; SAMUEL S. GAILLARD, Perdue Hill; JULIUS O. BELUE, Rogersville; ALFRED C. SMITH, Shawmut; GILBERT A. RHODES, Troy; JOHN C. GODBOLD, Whatley.

To Camp Sevier, Greenville, S. C., from Fort Oglethorpe, for temporary duty in *the* base *hospital*, Lieut. HENRY P. HANNA, Birmingham.

Arizona

To Camp Kearny, Linda Vista, Calif., base hospital, Capt. LEON JACOBS, Yuma.

To Fort Riley, Kan., Lieut. GEORGE W. PURCELL, Tucson.

Arkansas

To Camp Lewis, American Lake, Wash., Lieut. PAUL E. JOHNSON, Holly Grove.

To Fort Riley, Kan., Lieuts. BERT C. HINER, Evansville; JOHN H. BAKER, Peach Orchard.

To St. Louis, Mo., School of Neurologic and Plastic Surgery, Lieut. MILES E. FOSTER, Fort Smith; *to Washington University*, from Fort Oglethorpe, Lieut. JOSEPHUS J. SHERRILL, Warren; and from Fort Riley, Lieut. WALLACE D. ROSE, Little Rock.

California

To Camp Greenleaf, Fort Oglethorpe, *Ga.*, *for instruction*, from the Army Medical School, Lieut. CHARLES C. DICKINSON, McCloud.

To Camp Lewis, American Lake, Wash., Lieut. RUSSEL R. BURT, South Pasadena.

To Fort Riley, Kan., Lieuts. JOHN C. IRWIN, Los Angeles, and CORNELIUS T. DEVINE, *Oakland*.

Colorado

To Camp Funston, Fort Riley, Kan., from duty as a private at the same camp, Lieut. EUGENE H. BROWN.

To Camp Lee, Petersburg, Va., as member of board for tuberculosis examination, from Camp Sheridan, Capt. ALEXIUS M. FORSTER, Colorado Springs, Colo.

To Camp Sheridan, Montgomery, Ala., Base Hospital, Capt. HENRY W. HOAGLAND, Colorado Springs.

To Fort Riley, Kan., for instruction, Lieut. ARCHIBALD J. CHISHOLM, Antonio.

To Fort Leavenworth, Kan., for duty, from Fort Riley, Lieut. EDWIN D. BURKHARD, Delagua.

To Fort Riley, Kan., for instruction, Lieut. AUGUSTINE S. CECCHINE, Denver, Colo.

To the inactive list on account of being physically disqualified for active service, Lieut. FOREST C. KRACAW, Oak Creek, Colo.

Connecticut

To Army Medical School, for instruction in orthopedic surgery, from Fort Oglethorpe, Ga., Capt. JAMES L. MORIARITY, Waterbury.

To Camp Devens, *Ayer*, Mass., *Base* Hospital, Lieut. HAROLD L. BURR, Middletown.

To Camp Lewis, American Lake, Wash., from Fort Oglethorpe, Ga., Lieut. WALTER S. LAY, *Hamden*.

To St. Louis, Mo., Washington University, for instruction, from Fort Riley, Capt. ROBERT J. LYNCH, Bridgeport.

To Walter Reed General Hospital, Takoma Park, for instruction in tuberculosis examinations, Lieut. ELLIOTT H. METCALF, Rockville.

District of Columbia

To Philadelphia, Pa., for instruction in orthopedic surgery, Lieut. MARTIN H. SPELLMAN, Washington.

Florida

To Camp Lee, Petersburg, Va., from Camp Shelby, as a member of board for tuberculosis examinations, Lieut. JULIAN E. GAMMON, Jacksonville.

To Camp Wheeler, Macon, Ga., Lieut. WILLIS H. WATSON, Lakeland.

To Fort Monroe, Va., from Tenafly, N. J., Lieut. WILLIAM G. McKAY, Jacksonville.

To Fort Oglethorpe, Ga., Lieut. GROVER C. HARDIE, Fort Pierce.

To St. Louis, Washington University, for instruction, from Fort Oglethorpe, Capt. FRANCIS A. G. MURRAY, Lake City, Fla.

Georgia

To Fort Oglethorpe, Ga., for instruction, Capt. SIDNEY WALKER, Dublin; Lieuts. WILLIAM A. GIBSON, Jr., Agricola; GEORGE C. Brooks, Alpharetta; MOSES B. COPELOFF, Atlanta; SIGE EHRLICH, Bainbridge; CLEVELAND W. FINDLEY, Broxton; YOUNG C. LOTT, Ceilla; CHAPMAN Q. DYKES, *Cochran*; LUCIUS K. PATTERSON, Cuthbert; JOSEPH A. McGARITY, Draketown; OVID H. CHEEK, Dublin; ISAAC J. PARKERSON, Eastman; HAROLD R. LIPSCOMB, East *Point*; JOHN W. McELROY, Fitzgerald; ROLAND L. BROOKS, Geneva; LEE B. MATHEWS, Hawkinsville; CHALMERS HINTON, Lawrenceville; WILLIAM H. POWELL, Lumber City; LINTON C. McAFEE, Macon; WILLIAM T. FREEMAN, Matthews; JAMES K. PETTIT, Milledgeville; HENRY F. LYON, Mystic; ROBERT E. McCLURE, Norcross; JOHN W. DURDEN, Oak Park; ROY A. HILL, Pelham; ALBERT F. BRAWNER, Smyrna; HERBERT B. KENNEDY, Statenboro; VIRGIL W. OSBORNE, Stone Mountain; JAMES J. CRUMBLEY, Sylvester; LEMUEL J. JOHNS, Tallapoosa; CARL W. LUPE, Vienna; GEORGE W. KELLY, Washington; FRANCIS C. NESBIT, Waycross; JAMES D. DE LAMAR, West Point.

To Pittsburgh, Pa., for instruction in military reoentgenology, from Chickamauga Park, Lieut. JAMES T. GALLOWAY, Atlanta.

Idaho

To Fort Riley, Kan., for instruction, Lieut. ROY E. MASON, Mackey.

To St. Louis, Mo., Washington University, for instruction, from Fort Riley, Capt. ERWIN W. KLEINMAN, Hailey.

Illinois

To Camp Cody, Deming, N. M., Base Hospital, from Fort Riley, Lieut. GUSTAVE A. FLORETH, Mt. Olive.

To Camp Custer, Battle Creek, Mich., from University of Pennsylvania, for temporary duty, Lieut. WILLIAM McMICKEN HANCHETT, Chicago.

To Camp Dodge, Des Moines, Iowa, Base Hospital, from University of Pennsylvania, Lieut. ERWIN R. SCHMIDT, Chicago.

To Camp Gordon, Atlanta, Ga., Base Hospital, from Fort Oglethorpe, Lieut. HERBERT L. WILLIAMS, Bartonville.

To Camp Grant, Rockford, Ill., as president of the board to examine troops for tuberculosis, Major CLARENCE L. WHEATON, Chicago.

To Camp Lewis, American Lake, Wash., from Fort Oglethorpe, Lieuts. FRANKLIN J. CORPER and SAMUEL B. LYONS, Chicago; FRANKLIN A. MARTIN, Tower Hill; from Fort Riley, CHARLES J. HIGINBOTHAM, Streator.

To Camp Meade, Annapolis Junction, Md., from Army Medical School, Lieut. GUY V. FORNEY, Walnut.

To Camp Mills, Garden City, L. I., N. Y., Forty-First Division, from Fort Sheridan, Lieut. LOUIS RUDOLPH, Chicago.

To Camp Sherman, Chillicothe, Ohio, as a member of board of tuberculosis examiners, from Camp Shelby, Capt. RUSSELL ADKINS, Chicago; for duty, from Fort Sheridan, Ill., Lieut. CHARLES D. ELDRED, Chicago.

To Chicago, Ill., and on completion, *to Fort Riley,* for instruction, Lieut. JOHN C. ROGERS, Chicago. *To enlist the enlisted personnel of Base Hospital No. 14,* Lieut. HAROLD E. JONES, Chicago.

To Fort Oglethorpe, Ga., for instruction, Lieut. THOMAS A. WAYLAND, Dallas City.

To Fort Riley, for temporary duty in the base hospital, Capt. THOMAS L. DAGG, Chicago. For instruction, Capts. CLARENCE W. GEYER, Aurora; FRANK A. PALMER, Morris; HUGH L. MARSHALL, Stronghurst; Lieuts. GEORGE F. RENDLEMAN, Anna; WALTER S. MIX, Beardstown; EDWARD F. FOX, ROBERT T. GAY, HOMER S. WARREN, Chicago; PAUL R. COPELAND, Creal Springs; ERNEST C. WHITE, Springfield; HARRY W. KINNE, West Chicago; from Camp Taylor, ELLIOT C. DU MARS, Peoria.

To Rockefeller Institute, for instruction, and on completion to his proper station, Major ALLEN B. KANAVEL, Chicago.

To St. Louis, Mo., School of Neurologic and Plastic Surgery, Capt. FRANK C. SIBLEY, Carmi.

To home from Camp Bowie, and honorably discharged on account of being physically disqualified for active service, Lieut. AUGUST C. ARMBRUSTER, Collinsville.

To home from Fort Riley and the inactive list, Lieut. LESLIE A. KUHN, Chicago.

Indiana

To Camp Dix, Wrightstown, N. J., Seventy-Eighth Division, for duty, from Fort Benjamin Harrison, Lieut. KARL C. EBERLY, Fort Wayne.

To Camp Fremont, Palo Alto, Calif.; Base Hospital, from Fort Oglethorpe, Lieut. JOHN E. KELLY, National Military Home, Ind.

To Camp Kearny, Linda Vista, Calif., for duty, from Fort Oglethorpe, Lieut. EPHRAIM M. FOLSOM, Evansville.

To Camp Pike, Little Rock, Ark., Base Hospital, Lieut. HARRY BOYD-SNEE, South Bend.

To Fort Bliss, Texas, for temporary duty, from Washington University, St. Louis, Mo., Capt. GEORGE B. BREEDLOVE, Martinsville.

To Fort Oglethorpe, Ga., for instruction, Lieut. HENRY W. IRWIN, Indianapolis.

To Fort Riley, Kan., for instruction, Lieut. IRA E. BOWMAN, Odon.

To Montgomery, Ala., Aviation Mobilization Camp, for duty, from Fort Oglethorpe, Lieut. JULES L. BIERACH, Salem.

To New York City, Cornell Medical College, for instruction in military roentgenology, Lieut. CHARLES S. WOODS, Indianapolis.

Iowa

To Fort Riley, for instruction, Capt. WILLIAM M. WILDMAN, Fort Dodge; Lieuts. FRANK H. CAFFEY, Bradgate; ROLLIN S. FILLMORE, Corinth; ABRAHAM G. FLEISCHMAN and GEORGE S. GILPIN, Des Moines; JOHN F. SCHWERTLEY, Earling; LONNIE A. COFFIN, Farmington; EDWARD M. THIERLS, Granville; WALTER A. W. KRESENSKY, Greeley; WILLIAM W. WEBER, Hartford; MILLARD F. SMITH, Little Rock; MERL L. PINDELL, Macksburg; ERNEST D. COOK, Maquokata; JOSEPH C. BARRAGY, Mason City; JACOB J. SYBENGA, Pella; ALVIN H. HENDRICKSON, Sioux City; EDWIN E. WUTTKE, Sumner; FRANCIS S. COREY, Williams.

To Rockefeller Institute, for instruction, and on completion *to Camp Wadsworth,* Spartanburg, S. C., Lieut. MEREDITH B. MURRAY, Macedonia.

To his home and honorably discharged on account of being physically disqualified for active service, from Fort Riley, Capt. WILLIAM S. NORTON, Muscatine.

Kansas

To Camp Cody, Deming, N. M., Base Hospital, from Fort Riley, Lieuts. FREDERICK S. HAWES, Russell; WILLIAM G. BURTON, Wichita.

To Camp Devens, Ayer, Mass., Base Hospital, from Fort Riley, Lieut. EDWARD X. LINK, Junction City.

To Camp Meade, Annapolis Junction, Md., for instruction, Lieut. FREDERICK E. WRIGHTMAN, Sebetha.

To Camp Sherman, Chillicothe, Ohio, Base Hospital, from Fort Riley, Lieut. EARL L. VERMILLION, Tescott.

To Fort Riley, for instruction, Lieuts. CLAUDE F. HAYES, Arlington; WILLIAM K. FAST, Atchinson; OSCAR N. LIGHTNER, Benton; HERBERT H. PRICE, Coffeyville; LEO E. HAUGHEY and ROSS E. WEAVER, Concordia; JOHN H. HANSEN, Elkhart; EUGENE M. ADKINS, Galatia; NORMAN B. FALL, Gouda Springs; DAN M. FORBES and MAYRO O. HEDGE, Kansas City; CHARLES W. MATLOCK, Marion; HENRY H. HAERLE, Niles; JAMES A. HOCKADAY, Pratt; WINSTON G. RAMSEY, Protection; WALTER O. QUIRING, Shawnee; OSCAR L. ERICKSON, Topeka, and WILSON K. HOBART, Topeka.

Kentucky

To Camp Devens, Ayer, Mass., Base Hospital, from Fort Riley, Lieut. ISAAC J. HOOVER, Owensboro.

To Camp Lewis, American Lake, Wash., for duty, from Fort Oglethorpe, Capt. CHARLES B. KOBERT, Lebanon.

To Camp Sherman, Chillicothe, Ohio, Base Hospital, from Fort Riley, Lieut. LUTHER BACH, Jackson.

To Fort Oglethorpe for instruction, Capt. PORTER V. BALLOU, Rowena; Lieuts. EVAN G. GALBRAITH, Brooksville; HARRY P. HONAKER, Horse Cave; FREDERICK A. HOYER, Paducah.

To Fort Riley for duty, from Camp Taylor, Capt. PHILLIP H. STEWART, Paducah; for instruction, Capt. WILLIAM S. LITTLE, Owensboro.

To Fort Sill, Oklahoma, Base Hospital, for temporary duty, from Fort Oglethorpe, Lieut. HARRY L. PELLE, Louisville.

To Hoboken, N. J., for duty, from Camp Dix, Capt. JOHN L. PHYTHIAN, Newport.

Louisiana

To Camp Lewis, American Lake, Wash., for duty, from Fort Oglethorpe, Capt. JAMES C. BURDETT, Pelican; Lieut. IRENAEUS N. TUCKER, New Orleans.

To Fort Oglethorpe, Ga., for instruction in tuberculosis examination, Lieuts. PAUL B. LANDRY, Fort Allen; CORNELIUS P. MUNDAY, Shreveport.

To Fort Riley for instruction, Lieut. WILLIAM O. CALLAWAY, New Orleans.

Honorably discharged on account of being physically disqualified for active service, Lieut. ALLEN G. ZEAGLER, Olla.

Maryland

To Camp Taylor, Louisville, in base hospital, from Fort Des Moines, Major FRANK MARTIN, Baltimore.

To Fort Oglethorpe for instruction, Capt. RASTUS R. NORRIS, Crisfield; Lieuts. VERNON S. WILKINSON, Aberdeen; HOVHANNES K. PELTEKIAN, and JOHN H. TRABAND, Jr., Baltimore.

To Fort Sam Houston, Texas, for temporary duty at Camp Stanley, Leon Springs, Texas, from Fort Oglethorpe, Lieut. LEO F. STEINDLER, Baltimore.

To Philadelphia, for taking moving pictpres for instruction purposes, and upon completion to his proper station, Major ROBERT T. TAYLOR, Baltimore.

To Rockefeller Institute for instruction, Lieut. ROBERT S. CUNNINGHAM, Baltimore.

To St. Louis, Washington University, for instruction, from Fort Oglethorpe, Lieut. WILLIAM H. SMITH, Jr., Hagerstown.

Maine

To Camp Shelby, Hattiesburg, Miss., for temporary duty examining the command, from St. Elizabeth's Hospital, Washington, D. C., Capt. FRANK E. LESLIE, Andover.

To Fort Oglethorpe, for instruction, Lieut. JOHN G. POTTER, Houlton.

Massachusetts

To Camp Dix, Wrightstown, N. J., for duty, Capt. RALPH A. WARDEN, Boston.

To Camp Doniphan, Fort Sill, Okla., for temporary duty in the base hospital, from Fort Benjamin Harrison, Lieut. NEWTON S. STERN, Boston.

To Camp Greene, Charlotte, N. C., in the base hospital, from Neurological Institute, Lieut. ALFRED P. CHRONQUEST, Hathorne.

To Fort Oglethorpe for instruction, Lieuts. JEROME J. McCAFFREY, Attleboro; EDWIN C. GILBERT, Indian Orchard; WILLIAM V.

KANE, Lynn; JAMES H. MURPHY, Palmer; WILLIAM T. McMAHON, Pittsfield.

To Hoboken, N. J., for duty, from Camp Merritt, Lieut. CLARENCE L. CHANDLER, Townsend.

To New York, N. Y., Neurological Institute for intensive training in brain surgery, from Camp Sevier, Lieut. HENRY R. VIETS, Boston.

To his home and honorably discharged on account of being physically disqualified for active service, from Camp Devens, Capt. CHARLES O. KEPLER, Boston.

Michigan

To Camp Cody, Deming, N. H., Thirty-Fourth Division, in the base hospital, from Camp Sherman, Capt. GRIFFITH A. THOMAS, Detroit.

To Camp Lee, Petersburg, Va., for duty in the base hospital, Lieut. CHARLES R. MUELLER, Detroit.

To Camp Lewis, American Lake, Wash., for duty, from Fort Riley, Lieut. JOHN F. DOUDNA, Lake City.

To Camp Sheridan, Montgomery, Ala., for duty, from St. Elizabeth's Hospital, Lieut. JAMES A. BELYEA, Detroit.

To Camp Sherman, Chillicothe, O., base hospital, from Camp Grant, Capt. CAREY P. McCORD, Detroit.

To Detroit, Mich., as a medical member of Examining Board and Recruiting Officer, Lieut. FRANK L. RYERSON, Port Huron.

To Fort Logan H. Roots, Ark., for duty, from Fort Sill, Okla., Major FRANK SUGGS, Detroit.

To Fort Riley for instruction, Capt. HENRY S. COLE, Whitehall; Lieuts. FRANK W. BROWN, Bay City; FREDERICK L. MORSE, Lake Odessa.

To New York City, Bellevue Hospital, for instruction on fractures and upon completion to New York City, for instruction in orthopedic surgery and upon completion to his home and the inactive list of the M. R. C., Lieut. JOHN T. HODGEN, Grand Rapids.

To Rockefeller Institute for instruction, and on completion *to Camp Upton*, L. I., N. Y., for temporary duty in the base hospital, Lieut. WILLIS L. DIXON, Benton Harbor.

Minnesota

To Camp Dodge, Des Moines, Iowa, for duty, from Minneapolis, Lieut. JAMES M. NORTHINGTON, Minneapolis.

To Camp Lewis, American Lake, Wash., for duty, from Fort Riley, Capt. JACOB F. AVERY, Minneapolis; Lieut. FRED B. COLEMAN, St. Paul.

To Camp Sherman, Chillicothe, O., base hospital, from Fort Riley, Lieut. ADOLPH F. DeTUNCA, Preston.

To Fort Riley, for instruction, Capts. ROBERT P. PEARSALL, Aurora; RUDOLPH H. WALD, Hastings; Lieuts. JOHN A. SAARI, Eveleth; URSUS V. PORTMANN, Jackson; Lieut. ALBERT M. LARSON, St. Paul.

To Milwaukee, Wis., Light Horse Squadron Armory, from Fort Riley, Lieut. WILLIAM J. EGAN, Rochester.

To St. Louis, Mo., Washington University for instruction, from Fort Riley, Lieut. LYNN J. WALKER, Wycoff.

To Washington, D. C., for duty, Major WILLIAM H. MAYO, Rochester.

Mississippi

To Camp Devens, Ayer, Mass., base hospital, from Fort Riley, Lieut. ELI E. FARMER, Dockery.

To Camp Lewis, American Lake, Wash., for duty, from Fort Riley, Lieut. FORNEY K. HOLLIS, Galtman.

To Fort Oglethorpe, Ga., for instruction, Lieut. WILLIAM L. ERVIN, Columbus.

To Fort Riley, Kan., base hospital, from Medical Officers Training Camp, Fort Riley, Lieut. ERNEST L. POSEY, Magee.

To his home and honorably discharged on account of being physically disqualified for active service, from United States Army General Hospital No. 1, Lieut. JOSEPH S. GATLIN, Laurel.

Missouri

To Camp Lee, Petersburg, Va., as member of board for examination for tuberculosis, from Camp Shelby, Lieut. ELBERT BAKER, St. Louis.

To Camp MacArthur, Waco, Texas, base hospital, from Fort Riley, Kan., Capt. EDWARD H. CLARK, Kansas City.

To Fort Riley, Kan., for instruction, Capts. LUTHER O. NICKELL, Macon; HUGH McCULLOCH, St. Louis; Lieuts. WALTER E. KOPPENBRINK, Alma; JOHN A. CORN, Amorest; GROVER C. JOHNSON, Belle; WALTER L. BRANDON, Borseley; CHARLES F. LYLE, Brownville; MITCHELL H. SHEBY, Charleston; FLOYD H. MAPLES, Clever; CARTER A. PROCTOR, Doniphan; CHARLES S. UNDERHILL, Franklin; FRANK A. ELDERS, Hematite; GEORGE F. COOPER, Kansas City; Lieuts. CHARLES F. DAVIS, HARRY W. DUGAY, FOREST F. FOSTER, ABRAHAM SALZBERG, JOHN H. WHITTAKER, Kansas City; RALPH E. MURRELL, Kirkwood; OTTO E. SCHOENFELD, Lathrop; FLOYD B. RICKETTS, Leslie; ROY J. OWENS, Millspring; ROY E. MYERS, Newtonia; ARCHIBALD R. STONE, Palmyra; CLARENCE J. LAWS, Princeton; ROBERT S. WILLIAMS, St. Clair; CHARLES E. MANESS, Stella; WILLIAM C. BRADLEY, HOWARD C. BRASHEARS, JAMES T. COOK, JAMES C. DONAHUE, ROY C. DRIPPS, ROLAND N. HOLCOMBE, SYDNEY S. LEVIN, EUGENE D. McCARTY, WALTER J. MELLIES, JOSEPH C. PADEN, FRED S. PERRINGS, MADISON J. PULLIAM, HERMAN RAMMING, JAMES C. RELINGTON, GEORGE L. RILEY, LOUIS W. SCHREIBER, RAYMOND B. T. SWEANY, JAMES C. THOMPSON, LEON V. URBANOWSKI, WILLIAM B. YORK, St. Louis; PAUL W. WIPPERMAN, Truesdale.

To Rockefeller Institute, New York City, for instruction and on completion *to Camp Greene,* base hospital, Lieut. JOHN L. REID, Kansas City; on completion *to Camp Hancock,* for temporary duty, Lieut. HARRY W. KING, Kansas City.

To St. Louis, Mo., School of Neurological and Plastic Surgery, for instruction, Capts. FRANK J. TAINTER, St. Charles; from Jefferson Barracks, IRA R. CLARK, St. Louis; from Fort Riley, Lieuts. CLAUDE J. HUNT, Kansas City; OWEN P. McPHERSON, Kansas City.

To his home and honorably discharged on account of being physically disqualified for active service, from Camp Funston, Lieut. JOSEPH A. BEEBE, Kansas City.

Montana

To Camp Lewis, American Lake, Wash., for duty, Lieut. CLYDE W. JUMP, Bozeman.

To Fort Riley, for instruction, Lieut. THOMAS M. MORROW, Medicine Lake.

To Camp Devens, Ayer, Mass., base hospital, from Fort Riley, Lieut. CHARLES B. EDWARDS, Overton.

Nebraska

To Camp Shelby, Hattiesburg, Miss., for temporary duty examining the command, from Phipps Clinic, Baltimore, Lieut. PAUL A. ROYAL, Lincoln.

To Fort Riley, Kan., for instruction, Capt. GLYNDEN A. YOUNG, Penca; Lieuts. MARTIN R. BROMAN, Axtell; CARROLL D. EVANS, Jr., Columbus; JAMES N. EVANS, Columbus; LESLIE B. CRUMRINE, Lincoln; CLINTON Q. DODD, Newport; AUGUSTUS C. BARRY, JOHN C. DAVIS, Jr., JACOB M. ERMAN, Omaha; WESLEY C. BECKER, Papillion.

To Hoboken, N. J., for duty from Cornell Medical College, WILLIAM H. MICK, Omaha.

To Omaha, Nebr., to enlist the enlisted personnel of base hospital No. 49, Capt. JOHN S. POTTS, Lieut. ABRAHAM GREENBERG, Omaha.

Nevada

To Camp Lewis, American Lake, Wash., for duty, from Fort Riley, Lieut. HERBERT A. ABBOTT, Reno.

New Jersey

To Camp Lewis, American Lake, Wash., for duty, from Fort Oglethorpe, Lieuts. ROBERT R. REED, Morristown; ABRAM B. ABRAMOWITZ, Newark.

To Camp Merritt, Tenafly, N. J., for duty in the base hospital, Capt. MICHAEL S. GRANELLI, Hoboken.

To Fort Oglethorpe, Ga., for instruction Capt. ALFRED G. SHEPPARD, Bridgeton; Lieuts. FRANÇIS W. PIKE, Hoboken; FRANK J. RONAYNE, Orange.

To Picatinny Arsenal, Dover, N. J., for duty, from Fort Oglethorpe, Lieut. ERNEST A. L. DICKINSON, Trenton.

New Mexico

To Fort Riley, for instruction, Lieut. JAMES A. STEEL, Las Cruces.

New York

To Boston, Mass., for duty as medical member of Examining Board No. 1, from Plattsburg Barracks, Capt. WILLIAM W. LAING, Brooklyn.

To Camp Beauregard, Alexandria, La., Thirty-Ninth Division, in the base hospital, Lieut. JOSEPH E. CONNERY, New York.

To Camp Custer, Battle Creek, Mich., base hospital, Capt. LYNN S. BEALS, Buffalo.

To Camp Doniphan, Fort Sill, Okla., base hospital, from Fort Oglethorpe, Lieut. CARL KAPLAN, Brooklyn.

To Camp Greene, Charlotte, N. C., to examine the command for nervous and mental diseases, from Camp Greene, Lieut. ROBERT F. GAYLE, Jr., New York City.

To Camp Lewis, American Lake, Wash., for duty, from Fort Oglethorpe, Lieut. ARTHUR WEIL, Brooklyn.

To Camp Mills, Garden City, L. I., N. Y., base hospital, Capt. FRED M. MEADER, New York City.

To Camp Taylor, Louisville, Ky., for duty, from Fort Porter, N. Y., Major JUNIUS H. McHENRY, New York City.

To Camp Upton, L. I., N. Y., base hospital, Capt. MAX EINHORN, New York City.

To Fort Caswell, N. C., for duty, Capt. SPENCER FRANKLIN, New York.

To Fort Leavenworth, Kan., for duty in Dept. Laboratory, from Fort Riley, Lieut. DAVID M. KAPLAN, New York City.

To Fort Oglethorpe, Ga., for instruction, Major HARRY J. LIPES, Albany; Capt. WILLIAM B. REID, Rome; Lieuts. CARSON C. FAULKNER, Arena, Del. Co., N. Y., JAY L. TOUCHTONE, Blackwell's Island; WILLIAM M. ENNIS, ISIDORE D. HASKELL, ALLEN G. T. HIPPE, Brooklyn; JOHN H. WATSON, JOSEPH L. WOZNIAK, Buffalo; NELSON R. FRASIER, Glen Falls; ANTHONY LACOVARA, SAMUEL PALEG; THOMAS J. RYAN, HENDRIK VAN TENKEN STAM, New York City; FREDERICK B. BOND, Prattsburg; JASON H. CONGER, Utica.

To Fort Riley, Kan., for duty, from Army Medical School, Lieut. JAMES C. BARKER, New York City; from Fort Oglethorpe, Lieut. CHARLES G. DARLINGTON, New York City; for duty with Evacuation Hospital No. 7, Lieut. RANSLEY J. MILLER, New York City;

for temporary duty, and upon completion of this duty to his home and the inactive list, Lieut. FREDERICK L. GATON, New York City.

To Fort Sill, Okla., for duty, Lieut. EDWIN S. INGERSOLL, Rochester.

To New York City, American Social Hygiene Association for special duties in connection with venereal diseases, Capt. ALEC N. THOMSON, Brooklyn; *to Neurological Institute*, for instruction, from Fort Niagara, Capt. EDWIN G. ZABRISKIE, New York; *to Rockefeller Institute*, for instruction and on completion to Camp Hancock, base hospital, Lieuts. LEON E. DE YOE, New York City; on completion to Fort Oglethorpe, CHARLES JENNINGS, Elmira; on completion to Walter Reed General Hospital, Lieut. MICHAEL M. SCHULTZ, Astoria.

To St. Louis, Washington University, for instruction, from Fort Oglethorpe, Capt. HARRY R. STONE, New York City; from Camp MacArthur, Lieut. MAX BERNSTEIN, New York City.

To Walter Reed General Hospital, Takoma Park, D. C., for temporary duty, Capt. CALVIN M. KESSLER, New York City; for instruction in tuberculosis examination, Lieut. CHESTER F. DURYEA, Brooklyn.

To Washington, D. C., American Red Cross for duty, from Camp Mills, Major JOSEPH COLLINS, New York City.

To Williamsbridge, N. Y., United States Army General Hospital No. 1, for duty, from Allentown, Pa., Capt. CONDE DES. PALLEN, New York.

To his home and the inactive list from the office of the Surgeon-General, Major SIGMUND POLLITZER, New York City.

To his home and honorably discharged on account of being physically disqualified for active service, from Army Medical School, Lieut. HUBERT E. CHAUVIN, Brentwood.

North Carolina

To Camp Lewis, American Lake, Wash., for duty, from Fort Oglethorpe, Lieut. LELAND C. McINTOSH, Henderson.

To Camp Travis, Fort Sam Houston, Tex., from Fort Oglethorpe, Lieut. WILLIAM E. WISHERT, Charlotte.

To Fort Oglethorpe, Ga., for duty with Evacuation Hospital No. 5, Lieut. BEVERLY N. JONES, Walnut Cove; for instruction, Lieut. EDWARD J. WILLIAMS, Wingate.

To Hoboken, N. J., for duty, from Camp Greene, Lieut. SAMUEL H. LYLE, Franklin; from Camp Greenleaf, Lieut. JOHN B. BULLARD, Stedman; from Camp Mills, Lieut. WILLIAM H. SCRUGGS, Asheville.

To his home and honorably discharged on account of being physically disqualified for active service, from Camp Funston, Lieut. WILLIAM J. H. BOOHER, Oxford; from Fort Oglethorpe, Lieut. JAMES A. DIMMETTE, Walburg.

North Dakota

To Camp Lewis, American Lake, Wash., for duty, from Fort Riley, Lieut. JOSEPH H. PLANT, Montpelier.

To Fort Riley, Kan., for instruction, Capt. NICHOLAS J. SHIELDS, Walpeton.

To St. Louis, Mo., Washington University, for instruction, from Fort Riley, Lieut. WALTER L. BARBOUR, Deering.

Ohio

To Camp Sevier, Greenville, S. C., base hospital, from Camp Taylor, Capt. ELMER A. KLEIN, Norwood.

To Camp Shelby, Hattiesburg, Miss., base hospital, Lieut. CARL MULKY, Warrensville.

To Fort Oglethorpe, Ga., for instruction, Lieuts. JESSE GRIM, Akron; WILBUR G. CARLISLE, Bucyrus; JULIAN H. BUFF, Cincinnati; JOSEPH M. DUNN, JOHN D. KESSLER, Columbus; ALLEN G. CROW, Jacksontown; JOHN A. FILAK, Lakewood; EDGAR W. HILL, Jr., Marietta; GEORGE A. HAVEMANN, New Bremen; CHARLES J. ROACH, Zanesville; for duty with Evacuation Hospital No. 3, Lieut. MATTHIAS A. WAGNER, Lima.

To Fort Riley, for instruction, Lieut. ALBERT F. SARVER, Greenville.

To Fort Sill, Okla., for duty as director of the Gas Defense Dept. from Infantry School of Arms, Major ROBERT CONARD, Blanchester.

To his home and the inactive list of the Medical Reserve Corps, from Fort Oglethorpe, Lieut. ISAAC P. SEILER, Piketon.

Oklahoma

To Camp Cody, Deming, N. M., base hospital, from Fort Riley, Lieuts. CHARLES W. ALEXANDER, Temple; WILLIAM J. OMER, Thomas.

To Camp Lewis, American Lake, Wash., for duty, from Fort Oglethorpe, Lieut. SAMUEL T. CAMPBELL, Anadarko.

To Camp Sherman, Chillicothe, O., base hospital, from Fort Riley, Lieut. ORANGE R. WELBORN, Kingston.

To Fort Riley, Kan., for instruction, Lieuts. WILLIAM STOUT, Enid; WILLIAM W. BRODIE, Tulsa.

To Oklahoma City, Okla., for instruction in orthopedic surgery, from Camp Doniphan, Lieut. JOHN A. WALKER, Shawnee; from Fort Brown; Capt. LEONARD S. WILLOUR, Alester.

To Rockefeller Institute, for instruction and on completion to Camp Devens, Lieut. ROBERT L. WESTOVER, Okmulgee.

Oregon

To Camp Lewis, American Lake, Wash., for temporary duty examining the command for mental and nervous diseases, from Camp Lewis, Lieut. DICK R. ROSS, Salem.

To Fort Riley, Kan., for instruction, Lieuts. EDWIN E. STRAW, Marshfield; IVAN E. BELLINGER, Sweet Home.

To Portland, Ore., to examine applicants for appointment in the Medical Reserve Corps, Capt. RALPH A. FENTON, Portland; to complete the enlistment of the enlisted personnel of Base Hospital No. 46, Lieut. EDWARD F. ZIEGELMAN, Portland; for duty, Lieut. KARL P. MORAN, Portland.

Pennsylvania

To Camp Cody, Deming, N. M., for duty, Lieut. HORACE PHILLIPS, Philadelphia.

To Camp Dix, Wrightstown, N. J., base hospital, from Camp Greenleaf, Capt. CLARENCE F. M. LEIDY, Philadelphia.

To Camp Greene, Charlotte, N. C., for duty, from Army Medical School, Lieut. JOHN J. MOORE, Pottsville.

To Camp Lee, Petersburg, Va., for duty in the base hospital, Lieut. JOSEPH F. O'NEILL, Philadelphia.

To Camp Lewis, American Lake, Wash., for duty, from Fort Oglethorpe, Lieuts. JOSEPH A. PESSOLANO, Philadelphia; ALFRED L. RHOADS, Scranton.

To Camp Pike, Little Rock, Ark., base hospital, from Fort Oglethorpe, Capt. SAMUEL I. EBER, Pittsburgh; Lieut. CHARLES E. HAYS, Johnstown.

To Camp Sevier, Greenville, S. C., for the purpose of examining the command *in his specialty, from* Psychopathic Hospital, Ann Arbor, Mich., Lieut. ERWIN H. ERNEY, Philadelphia.

To Camp Sherman, Montgomery, Ala., for duty, from St. Elizabeth's Hospital, Lieuts. EMORY L. DRAVO, Warren; from Fort Riley, CHARLES G. MOORE, Pittsburgh.

To Fort Oglethorpe, Ga., for instruction, Lieuts. CHARLES B. YOST, Bloomsberg; CLARENCE E. KING, Brick Church; WILLIAM C. BROWNE, Burnside; FRANK R. NOTHNAGEL, Chester; HARRY J. STOCKBERGER, Claridge; ARTHUR D. COWDRICK, Clearfield; J. MERLE EVERWINE, Clymer; WALTER M. BORTZ, Greensburg; CLAUDE W. McKEE, Greensburg; PETER E. EAGAN, Hazelton; JAMES F. TIMBLE, Jeannette; FRANK G. SCHARMANN, Johnstown; GARNETT P. MORISON, Latrobe; JOSEPH H. WYATT, Mahanoy City; JAMES J. O'CONNOR, Mildred; JOSEPH W. POST, Millersburg; FRANK H. GARDNER, Montrose; WILLIAM E. ANDREW, Penn Argyl; GERSHON GINSBURG, CARL F. KOENIG, WILLIAM C. KOSSLER, JOHN J. NEAL, JOHN R. QUAY, Philadelphia; CHARLES E. PEACH, Pine Grove; ABRAHAM FINKELPEARL, FREDERICK V. LICHTENFELS, WALTER A. MONNICH, MICHAEL M. WOLFE, Pittsburgh; ALFRED M. BERGSTEIN, Pottsville; CHARLES C. RYAN, Republic; JOHN F. PARK, South Bethlehem; PAUL G. L. HOCH, Tarentum; STACY H. RINEHARDT, Washington; BURGESS A. GIBSON, Washingtonville; CLARENCE H. KETTERER, Butler.

To Hoboken, N. J., for duty, from Camp Dix, Lieut. SAMUEL H. BOYD, Philadelphia; from Camp Greenleaf, Lieut. MOES T. KNAPPENBERGER, Pittsburgh.

To New York City, Neurological Institute, for intensive training in brain surgery, from Camp Beauregard, Capt. WILLIAM C. HEISEY, McKeesport.

To Oklahoma, Okla., for instruction in orthopedic surgery, from Chickamauga Park, Ga., Capt. CARSON COOVER, Harrisburg.

To Philadelphia, for duty with Base Hospital No. 30, from Jefferson Hospital, Capt. FRANCIS F. BORZELL, Philadelphia; *to Evans Dental Institute*, for instruction, and on completion to Camp Devens, Capt. CARLTON N. RUSSELL, Philadelphia.

To St. Louis, Mo., Washington University, for instruction, from Fort Oglethorpe, Lieut. ROBERT E. STRASSER, Reading.

To Walter Reed General Hospital, Takoma Park, D. C., to exhibit films showing the technic of dichloramin-T, and on completion of this duty to return to his proper station, Capt. WILLIAM H. FURNESS, Wallingford; Lieut. WALTER E. LEE, Philadelphia; for temporary duty from Evans Dental Institute, Lieut. ARTHUR T. HENRICI, Pittsburgh.

To his home and the inactive list, from Camp Greenleaf, Lieut. WILLIAM V. COYLE, Philadelphia; from Northwestern University, Lieut. SAMUEL McCLARY, 3d, Philadelphia.

South Carolina

To Fort Oglethorpe, Ga., for instruction, Major THOMAS R. MARSHALL, Columbia; Capt. MORGAN P. MOORER, Georgetown; Lieut. WILLIAM S. BURGESS, Sumter.

To Fort Riley, Kan., for duty with Evacuation Hospital No. 7, Lieut. HARRY E. JENKINS, Port Royal.

To Rockefeller Institute, for instruction, and on completion *to Camp McClellan*, Lieut. WALKER H. ROWE, Greenville.

South Dakota

To Fort Riley, Kan., for instruction, Lieut. HERSCHEL G. HARRIS, Wilmot.

Tennessee

To Camp Lewis, American Lake, Wash., for duty, Lieut. JAMES S. SKAGGS, Maynardville.

To Camp Sevier, Greenville, S. C., base hospital, from Fort Oglethorpe, Lieut. EUGENE M. ORR, Nashville.

To Fort Oglethorpe, for instruction, Lieuts. ELISHA FARROW, Bells; THOMAS C. CHAPMAN, Brownsville; JOSEPH H. CHANCE, Cedar Hill; JAMES L. JOHNSON, Chattanooga; WALTER A. BELL, Cloverdale; BENJAMIN B. WRIGHT, Covington; EMMETT E. BYRD, Jonesboro; HIRAM A. LAWS, Jr., Lynchburg; FRED O. STONE, Maynardville; EDWIN C. GILLESPIE, Memphis; GROVER C. ENGLISH, Mount Pleasant; AAREIEL E. GOODLEE, Murfreesboro; JAMES L. BRYAN, JAMES D. LESTER, Nashville; WILLIAM E. McGAHA, Newport; IRA O. PARK, Union City; DANIEL C. HAGGARD, Unionville; SWAN BURRUS, Woodland Mills; for duty with Evacuation Hospital No. 4, JAMES D. L. McPHEETERS, Chattanooga; for duty with Evacuation Hospital No. 6, LEONARD A. CROSBY, Memphis.

To Fort Riley, Kan., for instruction, Lieut. CALVIN G. STRICKLIN, Clarendon.

To Rockefeller Institute, for instruction, and on completion to Camp Gordon, Atlanta, Ga., for temporary duty in the base hospital, Lieut. GROVER C. CONYERS, Gates.

To St. Louis, Washington University, for instruction, from Fort Oglethorpe, Capt. JAMES BREW, Jr., Nashville.

Texas

To Camp Travis, Fort Sam Houston, for duty, from Camp Travis, Lieut. HENRY H. LOOS, Palacios.

To Fort Oglethorpe, Ga., for instruction, Lieut. BENJAMIN F. LARGENT, McKinney.

To Fort Riley, Kan., for instruction, Lieuts. ARCHER B. WORSHAM, Brashear; ROBERT E. FORESTER, Burleson; HARRY H. HENDRICKS, Dallas; MELVIN L. HUTCHISON, Dallas; OSCAR C. WEST, El Paso; LYLE J. LOGUE, Houston; JESSE G. JENKINS, Hubbard; JOSEPH J. ROBERTSON, Kingsville; MOULDON SMITH, Roby; JAMES P. McNULTY, San Angelo; WILBUR CARTER, Sherman; HUBERT FERRELL, Tyler; THOMAS V. JENNINGS, Winters, Runnells County.

To Fort Sam Houston, Texas, for temporary duty, from Fort Oglethorpe, Lieut. ELMORE B. GILBERT, Gorman.

To Fort Sill, Okla., as assistant to the director of the Gas Defense Department from Western Department, Lieut. ARTHUR W. C. BERGFELD, Sequin.

To Fort Worden, Wash., for duty, from Fort Oglethorpe, Lieut. EDWARD J. BURNS, Carrizo.

To New York, Neurological Institute, for intensive training in brain surgery, Lieut. WILLIAM W. SHORTAL, Dallas.

To Oklahoma, Okla., for instruction in orthopedic surgery, from Camp MacArthur, Lieut. MARION BROWN, Mexia.

To St. Louis, Washington University, for instruction, from Fort Bliss, Capt. CHARLES M. AYES, Houston; Lieut. JOHN C. THOMAS, Taylor.

Utah

To Salt Lake City, Aviation Section, Signal Corps, for duty, Lieut. ROBERT R. HAMPTON, Salt Lake City.

To St. Louis, Washington University, for instruction, from Fort Riley, Lieut. CLARENCE A. NYVALL, Salt Lake City.

Vermont

To Fort Oglethorpe, Ga., for instruction, Lieut. LEWIS F. McCARTHY, Essex.

Virginia

To Army Medical School, for instruction in orthopedic surgery, from Fort Oglethorpe, Lieut. FREDERICK P. SUTHERLAND, Richmond.

To Camp Devens, Ayer, Mass., base hospital, from Fort Riley, Lieut. IRA THOMAS, Aldie.

To Camp McClellan, Anniston, Ala., base hospital, from Fort Oglethorpe, Lieut. LESLIE T. RUSMISELLE, Lovettsville.

To Camp Mills, Garden City, L. I., base hospital, from Fort Riley, Lieut. THOMAS MILLER, Fincastle.

Washington

To Camp Kearny, Linda Vista, Calif., base hospital, from Camp Kearny, Lieut. PEARL C. WEST, Seattle.

To Fort Riley, for instruction, Capt. EDMUND S. WEST, North Yakima; Lieuts. ALVIA G. NACE, South Tacoma; JO BENNETT BLAIR, Vancouver.

West Virginia

To Fort Oglethorpe, Ga., for instruction, Lieuts. MILTON D. FLANARY, Charleston; GEORGE P. McCOY, Franklin; HOWARD M. BATSON, Handley; ESLEY T. LAKE, Nuss; WALTER S. LINK, Parkersburg; CHARLES L. MOORE, Upper Tract; COLIN R. WEIRICH, Wellsburg; MILTON E. JONES, Welch.

Wisconsin

To Camp Cody, Deming, N. M., base hospital, from Fort Riley, Capt. JOHN S. FOAT, Ripon.

To Camp Lewis, American Lake, Wash., for duty, from Fort Oglethorpe, Lieut. CLAUDE I. WHEATLEY, Milwaukee.

To Fort Riley, Kan., base hospital, from Fort Leavenworth, Capt. MILTON W. HALL, Mondovi; from Fort Riley, Lieut. CHARLES A. YATES, Bangor; for instruction, Lieut. GEORGE I. BADEAUZ, Spooner.

To Milwaukee, Light Horse Squadron Armory, from Fort Riley, Major OTHO A. FIEDLER, Sheboygan; Lieuts. JEFFERY J. BROOK, ULRICH SENN, Milwaukee.

To Rockefeller Institute, for instruction in laboratory work, from Camp Travis, Lieut. RALPH R. GILCHRIST, Milwaukee.

To his home and honorably discharged on account of being physically disqualified for active service, Lieut. ARTHUR C. DANA, Fond du Lac.

To his home and honorably discharged, from Camp Doniphan, Lieut. HARRY E. MacLAUGHLIN, Waupaca.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

COLORADO

New Hospital.—Dr. Frank P. Van Denbergh, Greeley, has opened a Red Cross Hospital in that city with accommodation for twenty patients.

Base Hospital Accepted.—The medical personnel of Base Hospital No. 29, which has been formally accepted by the War Department, includes Major John W. Amesse, Denver, director of the unit; Major Edward F. Dean, Denver, chief of the surgical service; Major Gerald B. Webb, Colorado Springs, chief of the medical service; Capts. Lewis H. McKinnie, Colorado Springs; Cuthbert Powell, Denver; Clarence B. Ingraham, Jr., Denver; Oliver Lyons, Denver; Cyrus L. Pershing, Denver; William W. Williams, Denver; John R. Espey, Trinidad, and C. W. Poley, Denver, and Lieuts. L. Marshall Van Meter, Robert G. Packard, Lawrence K. Lunt, W. M. Barre, William C. Finnoff, Amos L. Beaghler, Ranulph Hudston, Harold G. Macomber, Arthur W. Stahl, Leonard G. Crosby and Wilson Cuthbert, all of Denver.

GEORGIA

County Physicians Organize.—The physicians of Chattooga County met at Summerville, November 2, and organized the Chattooga County Society, with an initial membership of fifteen. Dr. Benjamin F. Shamblin, Lyerly, was elected president; Dr. Willard B. Medlin, Summerville, vice president, and Dr. H. D. Brown, Lyerly, secretary-treasurer.

Health Proclamation.—The October issue of the *Health Bulletin* of the Georgia State Board of Health contains on its first page a proclamation by the governor on the subject of health, in which he advocates a return to the simpler and saner habits of life, and urges that all persons aid the constituted authorities by giving active cooperation to the state board of health in its effort to conserve the health of the people.

Personal.—Dr. Robert W. Todd, LaGrange, has been elected health commissioner for Tift County, succeeding Dr. D. C. Whittle, resigned to enter military service.——Dr. Andrew L. West, Athens, has become a member of the medical staff of the Macon Hospital, succeeding Dr. Francis Y. Herrington, Atlanta, resigned to enter military service.——Dr. Edward M. Green, clinical director of the Georgia State Sanatorium, Milledgeville, has resigned to accept the position of superintendent of the Pennsylvania State Hospital for the Insane, Harrisburg.——Dr. William A. Ellison, Milledgeville, physician to the State Reformatory, and health commissioner of Baldwin County, has resigned to enter the United States Public Health Service, and has been succeeded as health commissioner by Dr. George L. Chapman and as physician to the State Reformatory by Dr. Guy D. Compton.——Dr. Charles Wardell Stiles, U. S. P. H. S., Washington, D. C., has reported for duty to the Twenty-Eighth Division, Augusta, to take charge of the health situation in the zone contiguous to Camp Hancock.

ILLINOIS

In Memory of Gochnaur.—Memorial services were held in the First Presbyterian Church, Freeport, November 25, under the joint auspices of the church and Masonic fraternity in memory of Lieut. Orlando M. Gochnaur, M. R. C., who was killed in action while attached to the British Expeditionary Forces in France. A popular subscription has been appointed in Freeport for the erection of a monument for Dr. Gochnaur.

Personal.—Dr. Gustav F. Ruediger, director of the Hygienic Institute for La Salle, Peru and Oglesby, has resigned to become director of the State Hygienic Laboratory at the University of Nevada, Reno.——Lieut. Wallace A. Belsey, Belvidere, medical director with the British Forces, is reported to have been wounded.——Dr. Vera V. Norton, for four years resident physician of the Edward Sanatorium, Naperville, has been appointed one of the superintendents of the Cincinnati Tuberculosis Sanatorium.

Legal Opinions Concerning Sanatorium Tax Levies.—The attorney-general of Illinois has given an opinion to the State

Department of Public Health to the effect that under the Illinois sanatorium law counties which have made tax levies for sanatorium purposes, and which need the money now to proceed with their plans, may lawfully anticipate the 1918 spring tax collections with warrants drawn for immediate use. It has also been held, however, that counties which made their sanatorium levies in September cannot at any later meeting during the year increase the levy. Another holding is that where counties have made levies for sanatorium purposes, but have not sufficient funds to build a county sanatorium, such counties may pay out of the sanatorium fund the expenses of persons sent to sanatoriums in other counties of the state, but not outside the state.

Chicago

Fire at Medical Supply Depot.—A fire, presumably of accidental origin, destroyed the new warehouse of the medical supply depot at Fortieth and Federal streets, with a loss of about $100,000.

Women Physicians Entertain.—Sixty medical women of Chicago were guests of the Medical Women's Club of Chicago and the After Dinner Club at the College Club, December 12. A dinner and entertainment made up the program.

Dinner to Colonel Raymond.—A complimentary dinner was given by Major Daniel A. K. Steele, president of the Illinois Division, M. R. C., U. S. Army, in honor of Col. Henry I. Raymond, department surgeon, Central Department, December 12, at the Hotel La Salle.

Proceedings of the Institute of Medicine.—Volume I of the *Proceedings of the Institute of Medicine of Chicago,* a book of 168 pages, covering the year 1916-1917, has just appeared. It covers seven meetings and contains fourteen papers with discussions, and the obituaries and portraits of Dr. Henry B. Favill and Theodore B. Sachs. The roster of members lists 202.

Reporting Venereal Diseases.—The city ordinance of June 29, 1917, requires the reporting of venereal diseases to the board of health. In order to carry out the provisions of the ordinance the health department has prepared and mailed to all physicians within the city a postal card blank on which to report cases; a blank form of letter from one physician to another, to inform the latter that a patient treated by him has consulted the former, a form letter to report to the department of health that a patient has not reported to the physician and that ten days have passed since the time agreed on, and a pamphlet concerning venereal diseases for distribution to patients.

KANSAS

Typhoid Fever.—It is reported that there are 300 cases of typhoid fever in Eldorado, and that antityphoid inoculation has been given to 2,000 of the inhabitants.

Personal.—Dr. William S. Lindsay, Topeka, has qualified as medical examiner for the first district appeal board, succeeding Dr. Samuel J. Crumbine, secretary of the state board of health.——Dr. Albert C. Johnson, Kingman, coronor of Kingman County, has been appointed county physician, succeeding the late Dr. Newton C. Davis, Kingman.

IOWA

Personal.—Dr. Alexis N. Warren, Sioux City, sustained painful injuries, November 20, when his motor car was run into by another automobile. Dr. Warren is under treatment in the Samaritan Hospital.——County Physician Frank O. Burke of Scott County has resigned.

Hospital Opened.—The informal opening of the Iowa Congregational Hospital, Des Moines, took place, November 23. The hospital has just been completed at a cost of nearly $10,000. The date of the formal opening of the hospital is not yet fixed.

MASSACHUSETTS

Advisory Committee Appointed.—A committee of five physicians, consisting of Drs. Albert Evans, Boston, chairman; Dr. John T. Williams, Boston, secretary; Dr. Frank G. Wheatley, North Abington; Arthur A. Howard, Boston, and Dr. Harry Linenthal, Boston, has been appointed to cooperate with the industries in the work of protecting workers of the state against ill health, loss of time, accidents, sickness and death. One of the duties of this committee will be to see that the laws for protecting the health of workers are enforced in the state.

Personal.—Dr. Harry J. Hagerty has been appointed substitute ambulance surgeon in the Worcester police department, succeeding Dr. Robert J. Northridge, who has been made ambulance surgeon, vice Dr. Joseph A. Smith, resigned to enter military service.——Dr. Willard B. Howes, assistant superintendent of the Rutland State Sanatorium, has resigned to become school medical supervisor for the community health service at Framingham, and has been succeeded by Leon A. Alley, Boston.——Dr. Hiram L. Horsman, Worcester, has been appointed acting superintendent of the Grafton State Hospital, succeeding Dr. James V. May, Worcester, resigned to accept the position of superintendent of the Boston State Hospital.

Merger of Harvard and Technology School Forbidden.—The supreme court of Massachusetts has decided that Harvard University has no right to support the merger of the Lawrence Scientific School with the Massachusetts Institute of Technology from the Gordon McKay bequest, an arrangement which was put into effect some time ago, and under which Harvard abolished the Lawrence Scientific School. The decision is on the petition of Harvard to have the court ratify the agreement between the two institutions. In the opinion, written by Judge DeCourcy, it is said that Mr. McKay intended that not only the investment of the endowment fund, but the education which his endowment was to make possible, should be under the control and direction of the university, its government and administration. He selected as a trustee to carry out his purpose a great educational institution, one whose ability adequately to carry out his plans he was familiar with, and with whose historic name he desired to associate his own in perpetual memory. Harvard will now have to reestablish a school of applied science under its own administration.

MINNESOTA

Smallpox.—There were said to be forty-eight cases of smallpox in St. Paul, November 28.

Personal.—Dr. Carl J. Holman, Mankato, who suffered a fracture of three ribs and an injury of the lung in an automobile accident, recently, is reported to be doing well.

Medical Board Appointed.—Dr. Archibald MacLaren, St. Paul, has been appointed chairman, and Dr. Arthur S. Hamilton, Minneapolis, secretary of the Minnesota state committee on the organization and supervision of state medical advisory draft boards, and other members of the committee are Drs. William H. Magie, Duluth, Dr. John H. Adair, Owatonna, and Alfred E. Spalding, Luverne.

Social Hygiene Commission Appointed.—Governor Bernquist has appointed the following physicians as members of the bureau for disease control of the Minnesota Social Hygiene Commission: Drs. Richard O. Beard, Elexions T. Bell, Albert J. Shesley, William A. Jones and Leonard G. Rowntree, Minneapolis; Drs. Henry M. Bracken and Charles D. Freeman, St. Paul; Dr. Edward L. Tuohy, Duluth, and Dr. Charles H. Mayo, Rochester, and as a committee on education, Drs. Henry W. Cook and Samuel E. Sweitzer, Minneapolis.

MONTANA

Personal.—Dr. Ellis A. Johnston has resigned as city physician of Helena.——Dr. Sidney A. Cooney has been appointed a member of the board of health of Helena.

The Mineral County Leper.—The United States Public Health Service has notified the state health board that no federal action can be taken in the case of Senator O. J. Willett of Mineral County, who is suffering from leprosy. Senator Willett will be isolated in his own county at a location approved by the state board of health.

Scarlet Fever and Smallpox.—Scarlet fever is reported to be epidemic in Billings.——There are said to have been 102 cases of scarlet fever reported to the board of health of Helena since May 1. Of these, thirty-four patients are now under quarantine. The apex of the epidemic was in the middle of October, when there were sixty patients under quarantine.——Smallpox is reported to be prevalent in Corvallis, where more than forty patients are under treatment. ——The threatened epidemic of smallpox in Livingston is under control. There are now nine patients under quarantine and two suspected cases are under surveillance.

NEBRASKA

New Hospitals.—Mrs. William Glover, Aurora, has made an offer to the city council to turn over her home to the city for a hospital, on condition that it shall be made fireproof, shall be open to all citizens on equal terms, and subject to her approval. The house contains eleven rooms, is heated by hot water, and lighted by electricity.——The Glasgow General Hospital, Hastings, is now open and ready to receive patients.

Personal.—Charles R. Robel, manager of the Lord Lister Hospital, Omaha, was killed by the overturning of his automobile near Oakland, Iowa, November 30.——Dr. William S. Yager, Nebraska City, has been appointed physician for the School for the Blind, Nebraska City, succeeding Dr. Claude Watson, deceased.——Dr. Arthur C. Stokes, Omaha, has been appointed, by the Omaha Red Cross Chapter, director of the hospital unit which has recently been organized by the Surgeon-General.——Dr. Lawrence B. Pillsbury, assistant superintendent of the Lincoln State Hospital, has been appointed superintendent of that institution, succeeding Dr. Benjamin F. Williams.

NEW JERSEY

Personal.—Dr. Francis B. Husted, Salem, was painfully injured by the overturning of his car, November 20.——Dr. John R. Stevenson, Haddonfield, who sustained serious injuries in a fall, recently, is reported to be improving.

Physicians Win Suits.—In the case of Henry Pendl, who brought suit against Dr. Halvor L. Harley, Pleasantville, for $10,000 for the death of his son, claiming negligence on the part of the physician, the jury, November 21, returned a verdict in favor of Dr. Harley.——The jury in the case of Capt. William J. Condon, M. R. C., U. S. Army, New Brunswick, charged with the murder of John V. Piper, a Rutgers College student, returned a verdict of not guilty, October 27.

NEW YORK

State Association Meeting.—The Medical Society of the State of New York announces that its annual meeting will be held in Albany in the week beginning May 20, 1918.

Lobar Pneumonia Reportable.—According to the *Bulletin* published by the Buffalo Health Department, November 24, lobar pneumonia is declared a reportable disease, requiring quarantine.

Rockaway Physicians Organize.—The physicians of Rockaway have organized the Medical Association of Rockaway Beach, and elected the following officers: president, Dr. Frank P. Hatfield, and secretary, Dr. Abraham Goldberg.

Medical Staff for Home Defense Corps.—The following medical staff has been appointed by the Erie County Home Defense Committee: Major Earl P. Lothrop, and Capts. Almon H. Cooke, Frank B. Rasbach and Lawrence Hendee, all of Buffalo.

Personal.—Dr. Jason Parker has resigned as superintendent of the Jones General Hospital, Jamestown.——Lawrence S. Hill, physical director of the Albany public schools, has been elected president of the New York Association of Medical Inspectors and physical directors.——Dr. Walter M. Clark has succeeded Dr. Joseph N. B. Garlick as health officer of Schenectady.——Dr. Charles V. Patchin, who has been seriously ill at his home in Dansville, is reported to be improving.

Pneumonia Unusually Prevalent.—Dr. Hermann M. Biggs, state health commissioner, has issued a statement in which he predicts a high rate from pneumonia this winter. His prediction is based on the record of recent winters. In October there were 282 more deaths from this cause than in September, and 171 more than the average for October in the last five years. The importance of recognizing that pneumonia is a communicable disease and of acting in accordance with this fact is urged, and also that it is essential in guarding children against this disease that they be kept in the best state of nutrition and comfort. Figures published by the department, December 4, show that for the first week in December this year there were 249 cases reported as against 184 for the corresponding week of 1916 and 165 for the corresponding week of 1915. According to the city records the death rate from pneumonia is low among Germans, Russians and Hungarians; it is three and one-half times as high among Italian children as among children of German mothers, three times as high as among children of Russian, Austro-Hungarian or Irish mothers, and a little more than double that of American mothers. Attention is called to fatigue, chilling, overcrowding and the use of alcoholic beverages as factors favoring the development of the disease. The statistics show that the mortality from pneumonia among drinking men is twice what it is among abstainers.

New York City

Personal.—Dr. J. Ramsay Hunt has been appointed consulting neuropathologist to the Craig Colony for Epileptics, Sonyea, N. Y.——Dr. William H. Maxwell, superintendent of schools in Brooklyn, who has been seriously ill in Flushing Hospital, is reported to be convalescent.

New Day Camp for Tuberculosis.—Under the auspices of the Society for the Prevention and Relief of Tuberculosis, the Boat Committee formally opened a new day camp for the care of tuberculous patients, the "Manhattan," at the foot of East Ninetieth Street, December 6. Addresses were made by Health Commissioner Dr. Haven Emerson, Dr. Hermann M. Biggs, health commissioner of the state of New York, and Dr. Louis I. Harris.

Order Hospitals at Munition Works.—The subcommittee on industrial diseases, poisons and explosives of the Council on National Defense met at the Hotel McAlpin in New York, December 1, when it formulated recommendations for presentation to the Council on National Defense. The recommendations provide that all munition plants shall establish hospitals for the care of their employees, and restaurants in which the workers may eat under sanitary conditions. It is also recommended that the work in the plants be so regulated that the workers do not come in direct contact with nitro and amido compounds.

New York Academy of Medicine Elects.—The stated meeting of the New York Academy of Medicine, December 6, was the occasion of the annual election. The term of office of the president, Dr. Walter B. James, does not expire until Jan. 1, 1919. The officers elected were: vice president, Dr. John A. Hartwell; corresponding secretary, Dr. D. Bryson Delavan; treasurer, Dr. Seth M. Milliken; trustee, Dr. L. Emmett Holt; member of Committee on Admission, Dr. Godfrey R. Pisek, and member of Committee on Library, Dr. Herbert S. Carter.

OHIO

Insurance Committee Appointed.—The Ohio State Medical Association has appointed the following committee to cooperate with the State Health and Old Age Commission: Drs. Walter H. Snyder, Toledo; Otto P. Geier, Cincinnati, and Gilbert E. Robbins, Chillicothe.

Personal.—Dr. H. Wadsworth Dornan, Ashtabula, is reported to be seriously ill in St. Petersburg, Fla.——Dr. Oscar H. Sellenings, Columbus, now on duty with the American Red Cross in France, has begun a study of the milk situation in that country.——Dr. Harry E. Cover, Bantam, was thrown from his buggy in a runaway accident, November 19, fracturing his leg below the knee.——Dr. John C. Darby, Cleveland, recently suffered a slight cerebral hemorrhage, and is confined to the house.

Club Takes Action on Medical Corps.—The Exchange Club of Toledo at a recent meeting adopted resolutions, introduced by Dr. Charles M. Harpster, Toledo, urging its senators and congressmen to support the bill to be introduced in the coming session of Congress, which provides that the medical officers of the Army shall have the same rank that prevails in the Medical Corps of the Navy; that out of 10,000 medical officers in active service there shall be twenty-five major-generals, twenty-five brigadier-generals, 400 colonels, 800 lieutenant-colonels, 2,350 majors, 3,200 captains, and 3,200 first lieutenants; that medical officers shall be equal in rank and authority with officers of the line, and that these provisions shall apply both to the regular service and the Medical Reserve Corps.

PENNSYLVANIA

Health Insurance Commission.—Governor Brumbaugh, October 16, announced the appointment of a commission to study health insurance and report to the next legislature. The members are Hon. William Flinn, Pittsburgh; William Draper Lewis, Philadelphia, and Dr. John B. McAlister, Harrisburg.

Mütter Lecture.—The Mütter Lecture on surgical pathology for 1917 was delivered in Thomson Hall of the College of Physicians, December 14, by Dr. Chevalier Jackson, Philadelphia, on "Observation of the Pathology of Foreign Bodies in the Air and Food Passages, Based on the Observation of 628 Cases." The lecture was illustrated by specimens, lantern slides, roentgenograms and color drawings.

Personal.—Dr. James D. Kiefer, Mount Carmel, is ill with gastric ulcer.——Dr. Fulton R. Stotler, has resigned after twenty-eight years of service as a director of the Wilkinsburg Board of Education.——Dr. Samuel G. Dixon, who has been ill at the University Hospital, Philadelphia, for three months, left the institution, November 27, greatly improved in health.

——Dr. John L. Sagerson, Johnstown, who was injured in an automobile accident recently and was under treatment in the Mercy Hospital, is reported to be convalescent.——Dr. Carlton H. Davidson, New Salem, who is serving on the western front in France, was gassed by a German shell and was partially blinded for one week.

Smallpox.—During the last week in November there were sixty cases of smallpox in twelve counties in Pennsylvania. ——The number of cases at Blue Ball, Lancaster County, increased in two days from eleven to twenty-one cases. The state health commissioner has issued the following warning regarding smallpox: "The state should realize it now has a patriotic duty to perform in stamping out smallpox. Our agents throughout the state are competent and active men but they can do little if the public fails to do its part. The present smallpox epidemic in Clearfield County and surrounding neighborhood is directly due to the fact that a case of smallpox which came into the state from Ohio was secreted and the knowledge of it kept from the health authorities." ——The quarantine on the Pennsylvania Railroad Construction at Gallitzin, where nearly 100 men have been held for two months, was lifted, November 23.

Philadelphia

Hospital Campaign.—On the first of its ten-day campaign to raise $50,000, St. Timothy's Hospital obtained $30,538, over 60 per cent. of the amount desired.

Result of State Examination for Optometrists.—Under the new state optometry law the examination recently held at the Central High School showed that several hundred would fail to get licenses. A number of the applicants could neither read nor write English.

Personal.—Dr. Frank C. Hammond, Philadelphia, has been appointed a member of the board of health to serve during the absence in France of Dr. Alexander C. Abbott.——Dr. William W. Keen has declined the renomination of president of the American Philosophical Society, after serving ten years in that capacity.——Major Arthur C. Christie, M. R. C., Surgeon-General's Office, Washington, D. C., and Dr. George M. MacKee, New York, addressed the joint meeting of the Philadelphia County Medical Society and Philadelphia Roentgen-Ray Society at the College of Physicians Building, December 12.——Dr. Edward E. Montgomery addressed the Atlantic County Medical Society at the stated monthly meeting, held at the Chalfonte Hotel, Alantic City, December 14.

SOUTH DAKOTA

New Hospital.—The new Methodist Episcopal Hospital at Mitchell was dedicated, December 9. The building has cost about $100,000, and will accommodate more than 100 patients.

Personal.—Dr. Arthur J. Jackson, Lead, has been appointed a member of the State Board of Health and Medical Examiners, succeeding Dr. Felix E. Ashcroft, Deadwood, term expired.

New District Society Officers.—The Seventh District Medical Society held its annual meeting and banquet in Sioux Falls, December 3, and elected Dr. Joseph G. Parsons, Sioux Falls, president; Dr. George W. Bliss, Valley Springs, vice president, and Dr. Goldie E. Zimmerman, Sioux Falls, secretary.

VIRGINIA

Personal.—Dr. Edward W. Rawls, Churchland, has succeeded Dr. Sherwood Dix, Port Norfolk, as a member of the Norfolk County Board of Health.

Medical College Admits Women.—A report states that the faculty of the Medical College of Virginia of Richmond at a recent meeting voted to admit women students.

CANADA

Military Hospitals Under Army Medical Corps.—Final arrangements have been completed whereby the Canadian Military Hospitals Commission is handing over to the Canadian Army Medical Corps the care of all wounded and sick soldiers in Canada.

Hospital News.—A new military hospital is to be built in High Park, Toronto, where there are available 25 acres of land. It is to be constructed on the plan of the Ontario Military Hospital at Orpington, England. Accommodation will be provided for 1,000 beds, and buildings of four or five stories will be built in connection with an administration building. The hospital will cost about $300,000, and two months will be required to get the buildings in condition for the reception of patients.

Personal.—Capt. George Ewart Wilson, Toronto, who was with the University of Toronto Base Hospital at Saloniki, and lately in England, has returned to Toronto.——Col. Frederick W. Marlow, formerly A. D. M. S., Toronto Military District, has been ordered by the Militia Department of Canada to Halifax, where he will be engaged in caring for the injured in the recent disaster which has swept over that city.——So far as yet announced, Dr. Murdoch Chisholm, one of the leading physicians of Halifax, is the only physician of the city whose name is included in the list of those who lost their lives in the Halifax disaster.——Dr. Charles J. C. O. Hastings, M. O. H., Toronto, despatched three nurses immediately to help at Halifax, and another twenty-five nurses will leave in a day or two.

GENERAL

Once More a Warning.—The Journal has repeatedly warned its readers of a subscription swindle worked on physicians and others. The individual presents himself as a contestant for a prize in the form of a scholarship to be awarded by an educational association to the one obtaining the most subscriptions in a certain length of time. It is worked under different names; we have called attention to it as the National Educational Association, Cornell Educational Association, The United Students' Aid Society. The latest is the Advance Society of the University of Illinois, with a military angle. The solicitors, two well-dressed young men, represent themselves to be contestants for a scholarship in an Army school. May we again suggest that those who would avoid being swindled should avoid paying money to traveling men whom they do not personally know?

Peroral Endoscopists Organize.—November 1, the Clinical Association of Peroral Endoscopists was organized in Philadelphia. The objects of the society are "The study of diseases and accidents occurring in the respiratory and upper digestive tracts, of borderline conditions and their treatment, medical and surgical, by direct inspection." The association also aims to impress on the internist and general practitioner the value of bronchoscopy and esophagoscopy as diagnostic methods of precision, to make possible the accurate ocular study in the living subject of the pathologic condition of the esophagus and lungs. The officers of the association are as follows: president, Dr. Chevalier Jackson, Philadelphia; vice president, Dr. Hubert Arrowsmith, Brooklyn; secretary-treasurer, Dr. Henry L. Lynah, New York, and members of the executive committee, Drs. Wolff Freudenthal, New York, and Samuel Iglauer, Cincinnati.

FOREIGN

The Milk and Coal Card Plague.—The *Nederlandsch Tijdschrift* relates that an Amsterdam physician, complaining of the plague of certificates he is called on to fill out, states that eighty-nine requests for a milk certificate reached him in one mail. Each required investigation as to the reasons why the extra milk should be granted the applicant. He gave one man with stomach disease a certificate entitling him to sick benefit, and the man presented it to the coal control bureau and obtained 2 tons of coal on the strength of it—the first time that anthracite was deemed a stomachic.

Federation of Foundling Asylums in Italy.—A national gathering of the officials of the *brefotrofi,* the foundlings' asylums, of Italy was held recently at Rome. Steps were taken for a federation of these institutions throughout the country. Among the measures voted was an appeal to the government to extend to adopted children under 12 the financial aid now given to the other dependents of soldiers. The question of care of syphilitic infants, advisability of colonies for them and prophylaxis of infection of others were among the subjects discussed, as also the necessity for more effectual measures for research as to the paternity.

The Leipziger Verband.—According to the *Nederlandsch Tijdschrift,* the Leipziger Verband recently convened for the first time since the war began. Of the officials and representatives of the organization, seventy-four have perished. There are now 25,800 members. Hartmann is still the president, and he urged physicians to make every effort to get the sickness insurance societies to found diagnostic laboratories. The Verband voted to establish an old age pension bureau, also to sustain in every way the dispensaries that have been opened for diagnosis and advice, especially for venereal diseases, without giving treatment. The meeting also went on record as opposing the idea of the practice of medicine becoming a state department, saying that the medical profession is best practiced when the physician can advise the sick man as a free and independent consultant.

PARIS LETTER

Paris, Nov. 15, 1917.

The War

TREATMENT OF INFECTED WOUNDS WITH JAVEL WATER

At a recent meeting of the Académie des sciences, Dr. Cazin, formerly chief of the surgical clinic at the Hôtel Dieu, and Mlle. Krongold presented an interesting communication on this subject. They are of the opinion that the use of diluted Javel water in the treatment of infected wounds has been wrongly condemned as being irritating. As a matter of fact, Javel water, in sufficient dilution, is not irritating at all. Daufresne used a very strong solution, but Cazin uses a 15 per thousand solution, which does not have any deleterious effect on human skin, even when in contact with it for twenty-four hours. Histologic examination showed that skin so treated was absolutely normal. On the other hand, skin similarly treated for twenty-four hours with Dakin's solution, the hypochlorite solution of Daufresne, or a solution of Javel water containing the same amount of sodium hypochlorite as Daufresne's solution shows, on microscopic examination, complete destruction of the epidermis and of the papillary layer as well as maceration and partial disintegration of the underlying subdermal fascia. Cazin and Krongold having confirmed Daufresne's findings with the use of a 50 cg. per cent. hypochlorite solution, used a solution containing 15 gm. of Javel water to the liter of water, that is, 0.042 gm. per cent. of sodium hypochlorite, or twelve times less than either Dakin's or Daufresne's solution. They have treated with their solution, at the Messimy hospital, 510 cases of infected wounds, including 155 compound fractures, 286 deep wounds of the soft parts, usually with extensive lesions, 44 amputations made in the fighting zone and suppurating after operation, and 25 cases of severe multiple wounds of the soft parts. Of these 510 patients, only three died, one from tetanus, and one from a severe icterus; two amputations were made because of extension of the lesion, not because of sepsis; 507 patients, all with severe cases, were cured. The 15 per thousand solution of Javel water has a greater bactericidal power than Dakin's solution and is less irritating, the caustic properties of the latter being due to its greater sodium hypochlorite content.

FRENCH BASE HOSPITALS IN RUSSIA

As stated in a previous letter, three military medical-surgical units were sent to Russia to be utilized by our allies in three sections of the country as hospital centers. M. Justin Godart, undersecretary of state for the army medical department, has been informed that after having overcome great difficulties, these units are now in full operation. After three months of methodical [illegible] have been opened in Ourmiah, Tiflis an[illegible] ambulances have been sent to the front, and are giving very good service under the direction of Medical Inspector Cresson.

A MILK CARD FOR CHILDREN AND THE SICK

Following a conference between the prefect of the Seine and the dairy association, held to provide measures to insure a sufficient milk supply for infants and the sick, it was decided to issue a milk card for their benefit. According to the measures adopted, families having children less than 3 years of age, or sick members who are restricted to a milk diet, will register with some milkman of their choice, and he will give them a special card to be detached from a stub book of cards. This card the recipients must have endorsed by the mayor of their arrondissement after having established their right to such a card. The signature of the physician who gave the medical certificate must be verified by the milk dealer or the mayor. The card issued to the sick is valid for only three months, but may be renewed, if necessary.

ESTABLISHMENT OF A CENTRAL FOOD BUREAU

The food commissioner has established a central bureau or office at which he may be consulted and from which information will be disseminated on the proper methods to be adopted to facilitate the supplying of cooperative municipal organizations or associations and of purveyors of foods of prime necessity. The bureau will combat especially the high prices in large towns, and strive to balance demand and supply. The bureau will supervise the distribution of supplies, both domestic and foreign, according to the needs of the people.

The "Maison d'Amérique" (America Building)

M. Lopez Lomba, the consul general of Uruguay at Paris, recently informed the Geographical Society that certain individuals have agreed to his project for creating a Pan-Atlantic Union, having for its object the founding of a "Maison d'Amérique" in Paris and of "Maisons de France" in the principal cities of the western hemisphere. The "Maison d'Amérique" will be the center for the development of commercial, financial, intellectual and social relations between American countries and between these and western Europe. The scheme includes a general information and propaganda bureau, an industrial exhibit, an American library and museum, a tourist bureau, a society, a journal, an American University, a home for students, a section for welfare work and social defense, courts, lectures, expositions, congresses, etc. M. Lomba is convinced that he will receive the support of interested states and particularly of the Pan-American Union. The meeting adopted a resolution approving this project as outlined.

LONDON LETTER

London, Nov. 13, 1917.

The War

NEW FOOD RATIONS

Sir Arthur Yapp, director of food economy, has announced a new scale of voluntary rations, which are as follows:

	Weekly Ration Lb.	Weekly Ration Oz.
Bread:		
Men on heavy industrial work or on agricultural work	8	0
Men on ordinary industrial or other manual work	7	0
Men unoccupied or on sedentary work	4	8
Women on heavy industrial work or on agricultural work	5	0
Women on ordinary industrial work or in domestic service	4	0
Women unoccupied or on sedentary work	3	8
Other Foods (for all adults):		
Cereals other than bread		12
Meat	2	0
Butter, margarin, lard, oils and fats		10
Sugar		8
Children:		
Children to receive "reasonable" rations, no definite scale being laid down.		
The scale laid down by Lord Devonport, the previous food controller, last winter was:		
Bread	4	
(or flour for bread making)	3	
Meat	2	8
Sugar		12*

*Afterward reduced to 8 ounces.

The new scale differs in several respects from the old one. The former food controller confined himself to rationing bread, meat and sugar, whereas Sir Arthur Yapp adds (1) all cereals other than bread, and (2) butter, margarin, lard, oils and fats. While Lord Devonport recognized the wide differences between reasonable food requirements of, say, men employed in hard manual work, men engaged in sedentary occupations, women similarly employed, and children of various ages, his scale was based on a flat rate for each individual, without discrimination as to sex, occupation or age.

The "bread" rations include all flour, whether used for bread or for cooking. Flour may be taken instead of bread at the rate of three-fourths pounds of flour for every pound of bread. The "other cereal" rations include oatmeal, rice, tapioca, sago, barley meal, corn flour, maize meal, dried peas, beans and lentils, and all cereal products except bread and flour. The weight given is the weight of the dry article as bought. If the full bread ration is not used, the amount saved can be taken in other cereals at the rate of three-fourths pounds of cereals for every pound of bread saved. The "meat" rations include the average amount of bone, which may be taken as one quarter of the weight of the actual meat. Any parts of meat (such as rump steak, bacon or suet) which are bought without bone must count for one quarter more than their actual weight. On the other hand, any bone in excess of a quarter of the actual meat bought may be deducted. Poultry and rabbits may be counted at half their actual weight. The meat rations include suet.

A MINISTRY OF HEALTH

Speaking on this subject at the Royal Institute of Public Health, Mr. A. L. Fisher, the minister of education, said that the time now seemed to have come to consider whether all the agencies existing in the country should be combined into a more effective and economical system for promoting public health. A child came into the world under the egis of the Central Midwives Board. A month or two later he received the care, if he received any at all, of a voluntary association, which might or might not be subsidized by the

Board of Education or by the Local Government Board. About the age of 3 the child might proceed to an elementary school, and from 3 to 14 might receive his education there. During that period he was under the medical supervision of the school medical service, which in turn was controlled by the local education authorities and the Board of Education. From 14 to 16 the child did not seem to be under any special public health control. At 16 the child passed under the control of the Insurance Commission. Children who were engaged in manufactures were medically supervised by the Factory Department of the Home Office, unless they happened to be engaged in the manufacture of munitions, in which case they passed under the control of the minister of munitions, if they were not disabled by the war, in which case they were the prey of the Local Pensions Committee. Of course, if the child happened to be mentally defective, he passed under another system of control. If he had the misfortune to be a pauper he became the object of the solicitude of the Poor Law authorities. Thus the child might pass under a very large number of possible public health authorities.

Major Astor also read a paper. He referred to the administrative chaos which resulted from the responsibility for health and welfare being divided between seven central bodies, and many conflicting and overlapping local ones. The first thing required was a central department, and the second was the disentangling and straightening out of the spheres and functions of the 1,800 sanitary authorities of the 630 boards of guardians, of the 238 local insurance committees, of the 318 local education authorities, and of the 320 new pensions committees. Before the war he presided over an informal committee consisting partly of members of Parliament, and partly of practical medical administrators. They investigated alternative schemes of reconstruction. At first they favored the creation of a new ministry, but soon they became convinced that it would be easier, quicker and probably more effective at the start to build on an existing department. The committee next examined the machinery then in existence, and decided that of the various ministries only two needed to be seriously considered as possible nuclei for a health ministry—the Insurance Commission and the Local Government Board. At first the committee inclined to the Insurance Commission as the department on which to build, but was driven to the conclusion that at its inception, at all events, the Local Government Board should be the center to which the services connected with prevention, treatment and inspection should be gradually transferred from the numerous departments now responsible for their provision. If they were to carry out Lord Rhondda's ideal and save 1,000—or even 500—baby lives per week, they must have a health minister, and not three ministers, or even two ministers.

THE PREMIER'S TRIBUTE TO THE ARMY MEDICAL SERVICE

In proposing in Parliament a vote of thanks to the British armies at the conclusion of three years of war, Mr. Lloyd George paid a tribute to the medical service, which he said had never shown greater courage, knowledge and experience. Great consultants had given up princely incomes and volunteered for this service. Wounds had been cured which before the war were regarded as fatal. As an illustration of the services rendered in saving life, he mentioned that in the South African War 50,000 men had died of typhoid. In France, out of our gigantic army, during the whole three years of the war only 3,000 had fallen victims to this disease. The medical profession had suffered. Hundreds had been killed and many more hundreds wounded. Thanks were also due to the women, our trained and untrained nurses, whose tenderness for the wounded had earned thanks from the lips of hundreds of thousands of poor men whose lives had been saved and who had been spared much suffering through their tender ministrations. They had not escaped perils. Many had been killed by shell fire. Many of them had been drowned in hospital ships, sunk with the sign of the cross on them.

In the House of Lords, Earl Curzon proposed a similar motion. He said that when war broke out the Royal Army Medical Corps had 3,168 officers and 16,330 men of other ranks. There were at the present time nearly 14,000 officers and 125,000 of other ranks. The health of the army had been better than that of the civilian population at home. He also mentioned the work of the nurses, not only in the hospitals behind the line, but also in the casualty clearing stations only just behind the front. Seven had been drowned by submarine action, and several others had been killed by enemy bombs on hospitals. The name of one had been rendered immortal by her martyrdom.

Marriages

Frank Wyman Lamb, M.D., Akiak, Alaska, physician in charge of the Government Hospital, U. S. Bureau of Education, to Miss Rose May Wynne of Norton, Kan., at Akiak, October 13.

Lieut. Frederick Christopher, M. R. C., U. S. Army, Mobile Surgical Unit, to Miss Madeline Smith, both of Chicago, December 1.

George Edmund Dearden Desaulniers, M.D., Montreal, Que., to Lucy Jane O'Connell, M.D., of Lewiston, Me., November 23.

Asst. Surg. Frederick Talmadge Lau, U. S. N. R. F., Detroit, to Miss Amy Carleton Leefe of New York City, December 4.

Paul Butler Jenkins, M.D., New York City, to Miss Alma Louise Wells of Binghamton, N. Y., November 19.

Walter Lee Boswell, M.D., Macon, Tenn., to Miss Blarnae La Vleet Crawford of Rossville, Tenn., October 29.

Francis E. Drumheller, M.D., to Miss Ella Kirkpatrick, both of Sunbury, Pa., in Philadelphia, recently.

Alexander Emmett Turman, M.D., to Mrs. Ruby Thomas Storrs, both of Richmond, Va., December 5.

Frank Kingsley Dutton, M.D., to Miss Huldah Carlson, both of Springfield, Mass., December 1.

Fred Miller Drennan, M.D., Chicago, to Miss Esther Olive Clay of Quincy, Ohio, recently.

Deaths

Oscar M. Leiser, M.D., New York City; College of Physicians and Surgeons in the City of New York, 1896; assistant director of the Bureau of Health of New York; died suddenly, December 11. He was a Fellow of the American Medical Association and of the New York Academy of Medicine. Dr. Leiser was a powerful propagandist against charlatanry and fraud, and had been attached to the bureau since its organization. He had acted as the medical expert of the health department in trials of cases against quacks and medical fakers for several years, and not a case in which he had testified was decided by the courts against the department. Dr. Leiser was hated and feared by all the "patent medicine" fakers, for he was outspoken and fearless in his denunciation of their methods. In his connection with the department of health, which had continued for nearly twenty years, he had served in practically every medical branch of the department. Dr. Leiser was a man of charming personality, able and devoted.

Samuel Parker Cottrell, M.D., Newport, R. I.; Jefferson Medical College, 1882; aged 57; a member of the Rhode Island Medical Society; for several years assistant surgeon in the Massachusetts Women's Hospital, Boston; lecturer in Tufts Medical College, Boston; professor of children's diseases in the St. Paul Medical College, and later chief surgeon of the Boston Emergency Hospital; surgeon of volunteers during the war with Spain; a member of the Newport Board of Health; died in Providence, R. I., December 1.

Charles Willard Howard, M.D., Shoreham, Vt.; University of Vermont, Burlington, 1874; aged 72; formerly a Fellow of the American Medical Association; a member and once vice president of the Vermont State Medical Society, and president of the Addison County Medical Society; for fourteen years superintendent of schools; for three years a member of the county board of education, and since 1881 town clerk; in 1908 representative in the legislature from the town of Shoreham; died at his home, December 1.

William Wayne Owens, M.D., Savannah, Ga.; University of Virginia, Charlottesville, 1885; aged 54; a Fellow of the American Medical Association; a member of the Society of Southern Railway Surgeons; major and surgeon of the First Cavalry, Ga. N. G.; a member of the staff of the Savannah Hospital; a member of the state board of health; local surgeon of the Southern Railway; at one time a member of the city council of Savannah; died suddenly in a store in Savannah, November 23.

David Adams Spear, M.D., Burlington, N. J.; University of Virginia, Charlottesville, 1897; aged 39; a member of the

Medical Society of Virginia, and a specialist on diseases of the eye, ear, nose and throat; who formerly conducted a sanatorium at Albuquerque, N. M.; while driving his automobile over a grade crossing between Burlington and Florence, November 25, was struck by a freight train, and died from his injuries while being conveyed to the Riverside Hospital.

Samuel E. Lewis, M.D., Washington, D. C.; Medical College of Virginia, Richmond, 1864; aged 79; a Fellow of the American Medical Association; first vice president and later president of the Association of Naval Officers of the Army and Navy of the Confederacy; assistant surgeon in the Confederate Service, and in command of the Chimborazo Hospital, Richmond, Va., during the Civil War; from 1868 to 1884 a pharmacist; died in his apartment, November 17.

Samuel S. Boots, M.D., Greenfield, Ind.; Eclectic Medical Institute, Cincinnati, 1870; aged 68; for ten years a member and for two years president of the Indiana State Board of Health; president of the Greenfield Banking Company; for twelve years a member of the faculty of the Indiana Eclectic Medical [illegible]; formerly editor and publisher of the [illegible]l *Investigator* and *Greenfield Herald;* died at his home, November 30, from pneumonia.

Ami Jacques Magnin, M.D., Paris, France; Bellevue Hospital Medical College, 1881; Faculté de Médecine de Paris, 1886; aged 59; formerly secretary of the surgical section of the New York Academy of Medicine; and a member of the staff of the French Hospital, Bellevue Hospital, and Vanderbilt Clinic, New York City; chief surgeon of the American Hospital, Neuilly, near Paris; an officer of the Legion of Honor; died suddenly at his home, November 25.

Zephaniah Kerr Wiley, M.D., Baltimore; College of Physicians and Surgeons, Baltimore, 1875; aged 74; a Confederate veteran; lecturer in anatomy in Baltimore Medical College, and one of the founders; later professor of anatomy, professor of obstetrics and dean of Baltimore University; who was thrown from a street car while making a professional call about a month ago; died from his injuries in the Biedler-Sellman Sanatorium, Baltimore, November 25.

Samuel A. Johnson, M.D., Springfield, Mo.; Kentucky School of Medicine, Louisville, 1889; aged 54; a Fellow of the American Medical Association; superintendent of the Johnson Sanitarium, Springfield; formerly assistant superintendent of State Hospital No. 3, Nevada; was attacked with an axe by an epileptic patient in the yard of the hospital, November 24, sustaining injuries from which he died on the following day.

John Jacob Ott, M.D., Pleasant Valley, Pa.; University of Pennsylvania, Philadelphia, 1874; aged 66; a member of the Medical Society of the State of Pennsylvania; also a pharmacist; vice president and director of the C. and E. Railroad; director of the Quakertown Trust Company; and one of the originators and directors of the Globe Mutual Life Stock Insurance Company; died at his home, November 22.

Albert H. Steinbrecher, M.D., Detroit; Detroit Medical College, 1881; aged 59; a Fellow of the American Medical Association; professor of practice of medicine and clinical medicine in the Detroit College of Medicine and Surgery; a member of the staff of St. Mary's Hospital and the Womans' Hospital and Infant Home, Detroit; died at his home in Arden Park, Detroit, November 25, from heart disease.

Roland C. Shear, M.D., Mount Gilead, Ohio; Starling Medical College, Columbus, Ohio, 1891; aged 50; a member of the Ohio State Medical Association; a specialist in diseases of the eye, ear, nose and throat; for two terms coroner of Morrow County, and later deputy probate judge and probate judge; died in a hospital in Cleveland, November 26, two days after an operation for appendicitis.

John Taylor Jones, M.D., Grass Valley, Calif.; Cooper Medical College, San Francisco, 1898; aged 42; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of California; died at his home, November 19, from spinal injuries sustained in a dive in a swimming tank about ten years before.

Charles Orvis Goulding, M.D., Pittsburgh; Bellevue Hospital Medical College, 1887; aged 58; a Fellow of the American Medical Association, and a charter member of the Pittsburgh Academy of Medicine; associate professor of clinical medicine in the University of Pittsburgh; died at his home, November 27, from pneumonia.

Frederick Page Ransom, M.D., Pittsburgh; Jefferson Medical College, 1904; aged 37; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of Pennsylvania; assistant on the surgical staff of the Allegheny General Hospital; died at his home in Pittsburgh, November 19.

John William Baker, M.D., Granite City, Ill.; St. Louis University, 1911; aged 31; formerly a Fellow of the American Medical Association; a member of the Illinois State Medical Society; while driving his automobile over a grade crossing at Madison, Ill., November 30, was struck by a Wabash passenger train, and died two hours later at St. Elizabeth's Hospital, Granite City.

William Henry Keim, M.D., Philadelphia; Hahnemann Medical College, Philadelphia, 1871; aged 74; president and executive officer of St. Luke's Homeopathic Hospital, Philadelphia; and once president of the State Homeopathic Medical Society; demonstrator of surgery in his alma mater; died at his home, November 23.

Lieut. Sigmund Deutsch, M. R. C., U. S. Army, New York City; College of Physicians and Surgeons in the City of New York, 1892; aged 41; a Fellow of the American Medical Association; visiting physician to the German Hospital and Vanderbilt Clinic; died at his home, November 29, from cerebral hemorrhage.

Edward William Karrmann, M.D., Cheshire, Conn.; New York University, New York City, 1891; aged 65; a Fellow of the American Medical Association; acting assistant surgeon, U. S. Army in 1889; while driving over a grade crossing in Cheshire, November 28, was struck by a trolley car and instantly killed.

Olaf T. Melde, M.D., Spokane, Wash.; Physio-Medical College of Indiana, Indianapolis, 1890; aged 48; formerly a member of the Washington State Medical Association; who had been taking a postgraduate course at the Chicago Eye and Ear Hospital; died suddenly in that institution, November 19, from heart disease.

Capt. Augustin de Yterbide Green, M. R. C., U. S. Army, Prosser, Wash.; Georgetown University, Washington, D. C., 1901; aged 42; a Fellow of the American Medical Association; on duty at Camp Lewis, American Lake, Wash.; died in the cantonment base hospital, Camp Lewis, November 25, from pneumonia.

Frank Loring Sargeant, M.D., Victoria, Texas; College of Physicians and Surgeons, Chicago, 1900; aged 45; formerly a Fellow of the American Medical Association; a member of the State Medical Association of Texas; a specialist on diseases of the eye, ear, nose and throat; died at his home, November 11.

Jules F. Vallé, M.D., St. Louis; Washington University, St. Louis, 1885; aged 58; a Fellow of the American Medical Association; a member of the staff of St. Luke's Hospital; physician to the Missouri School for the Blind, St. Louis; a director of several iron companies; died at his home, November 24.

Rudolph F. Schaefer, M.D., Oklahoma City; Washington University, St. Louis, 1892; aged 51; formerly a member of the Oklahoma State Medical Association, and professor of obstetrics and diseases of women in Epworth College, Oklahoma City; died at his home, November 9, from diabetes.

James Mills, M.D., Janesville, Wis.; Northwestern University Medical School, 1883; aged 65; formerly a Fellow of the American Medical Association; a specialist on diseases of the eye, ear, nose and throat; jumped from a bridge in Janesville, into Rock River, November 18, and was drowned.

Abram Leander Sherick, M.D., Ashland, Ohio; Bellevue Hospital Medical College, 1880; aged 61; formerly a Fellow of the American Medical Association; a member of the Ohio State Medical Association; a specialist in surgery; died at his home, November 18, from disease of the stomach.

Francis Anderson Lyman, M.D., Waimea, Kauai, T. H.; Rush Medical College, 1889; aged 54; a Fellow of the American Medical Association; for nine years superintendent of the Wisconsin State Hospital, Madison; since 1913 a practitioner of Hawaii; died at his home, November 4.

Claire W. Murphy, M.D., Los Angeles; University of California, Los Angeles, 1891; aged 47; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of California; instructor in anatomy in his alma mater; died at his home, November 24.

Jonathan Milton Wyland, M.D., Moline, Ill.; State University of Iowa, Iowa City, 1886; aged 59; president of the Moline Foundry Company, who had been ill for two years with spinal disease, due to an accident; died at his home, November 29, four weeks after a surgical operation.

Joseph Lorenzo Brunet, M.D., New Orleans; Tulane University, New Orleans, 1898; aged 61; for many years a practitioner of Covington, La., formerly a member of the Louisiana State Medical Association; died at his home, November 19, from heart disease.

Waldo Fitch Sawyer, M.D., Vineland, N. J.; Jefferson Medical College, 1890; aged 52; a member of the Medical Society of New Jersey; once mayor, and for one term coroner of Cumberland County; died at his home, November 17, from pneumonia.

Hans Kudlich, M.D., Hoboken, N. J.; University of Zurich, Switzerland, 1853; aged 94; one of the last survivors of the Revolution of 1848; who retired from practice thirty years ago; died at his home, November 10, from acute bronchitis.

Thomas McKaig Wall, M.D., Osceola, Iowa; College of Physicians and Surgeons, Keokuk, Iowa, 1867; aged 73; formerly a member of the Iowa State Medical Society; a veteran of the Civil War; died at his home, November 18.

Silas Pinckney Holbrook, M.D., East Douglas, Mass.; University of Pennsylvania, Philadelphia, 1862; aged 80; a member and councillor of the Massachusetts Medical Society; died in Farnumsville, Mass., October 2.

Joseph Mark Malatesta, M.D., Philadelphia; Jefferson Medical College, 1886; aged 58; also a graduate in pharmacy; for a time instructor in dermatology in his alma mater; died at his home, November 22, from disease of the kidney.

William T. Griffis, M.D., Fountain City, Ind.; Eclectic Medical Institute, Cincinnati, 1871; aged 70; formerly a member of the Indiana State Medical Association; died at his home, about November 20.

John D. Kaple, M.D., Ogdensburg, N. Y.; Cleveland University of Medicine and Surgery, 1896; formerly a member of the Medical Society of the State of New York; died at his home, November 17.

William Alexander Armstrong, M.D., Philadelphia; Philadelphia University of Medicine and Surgery, 1861; aged 77; died at the home of his son in Philadelphia, November 22, from heart disease.

Albert A. Norris, M.D., Philadelphia; Hahnemann Medical College, Philadelphia, 1887; aged 63; for nineteen years chief clerk at the Philadelphia Mint; died at his home, November 24, from nephritis.

Joseph H. H. Reser, M.D., Conway, Mo.; Ensworth Medical College, St. Joseph, Mo., 1893; aged 67; a member of the Missouri State Medical Association; died at his home, November 8.

William H. Cole, M.D., Kewanee, Ill.; Long Island College Hospital, Brooklyn, 1873; aged 79; a member of the Illinois State Medical Society; died at his home, November 29.

George A. Bachman, M.D., Rochester, N. Y.; New York Homeopathic Medical College, New York City, 1892; aged 49; died at his home, November 21, from heart disease.

Samuel Andrew O'Neal, M.D., Henderson, Ky.; Meharry Medical College, Nashville, Tenn., 1888; aged 55; a colored practitioner; died, November 21, from influenza.

James McQuillen, M.D., Superior, Wis.; McGill University, Montreal, 1874; aged 67; a Fellow of the American Medical Association; died at his home, November 19.

William Robert Yuill, M.D., Yale, Mich.; Bellevue Hospital Medical College, 1877; aged 73; died at his home, November 17, from heart disease.

Daniel Grant Rowley, M.D., Culmerville, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1891; aged 59; died at his home, November 20.

Joseph M. Gerhart, M.D., Philadelphia; Hahnemann Medical College, Philadelphia, 1868; aged 71; died at his home, November 20, from pneumonia.

Howard A. Underwood, M.D., York Springs, Pa.; Hahnemann Medical College, Philadelphia, 1873; aged 74; died at his home, November 17.

Elbridge A. Herriman, M.D., Chicago; Victoria College, Toronto, Ont., 1860; aged 83; died at the home of his son in Chicago, November 28.

Moses Knapp, M.D., Gwynedd, Pa.; Philadelphia College of Medicine and Surgery, 1854; aged 77; died at his home, about November 8.

Thomas Wilson Johnston, Kingston, Mo. (license, Missouri, 1883); aged 84; a practitioner since 1863; died at his home, November 11.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

STRANDGARD'S T. B. MEDICINE

Exploiting the Tuberculous Canadian Soldier

The resident physician of a Canadian sanatorium devoted exclusively to the scientific treatment of tuberculosis writes:

> "The enclosed leaflet and letter from the Dr. Strandgard's Medicine Co. of Toronto, Can., is being sent in a plain envelope, marked 'personal' to a number of returned Canadian officers who are patients in this institution. If you have any information regarding this 'cure' or the company, your Canadian readers would appreciate its publication in The Journal."

The letter enclosed was on the stationery of the "Dr. Strandgard's Medicine Co." It was addressed to a man suffering from tuberculosis—a man who had been stricken with this disease while in the service of his country. The "patent medicine" concern states in its letter:

> "Our T. B. medicine is a specific for the complaint of which we have been informed you are suffering . . ."

This cruel falsehood is followed up by the statement that the stuff is a "high-class scientific preparation endorsed by physicians" which, previous to being put on the market, was "used with wonderful success in private practice." Further:

> "Dr. Strandgard has been awarded gold medals at four international exhibitions in Europe for his medicines."

Just what was the nature of these exhibitions, we do not know; possibly they were the same sort of international "expositions" that were exposed in The Journal[1] about three years ago whose "gold medals" meant no more than that the exploiter has paid a specified sum as a guaranty that he would receive an "award." The letter to the consumptive continues:

> "Of course, one bottle will not improve your health owing to the nature of your case, but after three bottles you will derive considerable benefit and will continue to take it until you feel you are restored to normal health. Kindly write us informing us of your permission to forward three bottles. We are agreeable to send them on condition that you do not pay for them unless you are satisfied with the progress you have made . . ."

This appeal is typical of "consumption cure" humbugs. Throughout the entire advertising matter the claim is made by inference that the remedy will cure consumption. None knows better than the trader in a fake consumption cure how easy it is to persuade the consumptive during the first few weeks of any new and mysterious "treatment" that he has been benefited. Time and again it has been shown that such concerns run no risk in offering to send limited amounts of their nostrums to the victims on a basis of "no pay unless satisfied."

The booklet sent by the Strandgard concern states that the preparation was originated by one "Chevalier Dr. Jean F. Strandgard, K. V. V. P." Some prospective purchasers are obtained by offering a free bottle of the nostrum to any one who will furnish "fifteen (15) names and addresses of persons genuinely suffering either from Consumption—Tuberculosis, Asthma, Bronchitis, Catarrh, Weak Lungs, Pleurisy, Pneumonia, Coughs, Colds, or any disease of the respiratory organs." No information is given regarding its composition, although a pretense is made of doing so by stating that it is:

> ". . . from Nature's Garden being made from pure Essences, Infusions, Extracts and healing medicinal virtues of rare barks, roots and herbs."

It contains alcohol—also typical of the fake "consumption cure"—and the usual excuse is offered that this drug is not present "in any larger quantity than is absolutely necessary" to dissolve one of the alleged constituents. It is to be taken six times a day in two-dram doses. The sixteen ounce bottle thus lasts about ten and one-half days. This means that the three bottles which they offer to send without payment in advance would last the victim about one month. Every physician who has treated consumptives knows that such patients after taking any nostrum—especially one containing alcohol or bitters—for three or four weeks under the glamour of the claims common to quackery, insist that they are "feeling better."

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[1] Reprinted, with addition, in the pamphlet, "Some Quasi-Medical Institutions," published by the American Medical Association; price 10 cents.

The booklet contains several testimonials; most of them from laymen. Not one of the testimonials declares that the stuff has cured a case of pulmonary tuberculosis or even that it is of value in such cases. Most of them refer to its alleged use in asthma and bronchitis. One is from an alleged sufferer from spinal tuberculosis who claims to have been benefited, although not cured. Two of the testimonials purport to be from medical men—A. H. Paget, M.D., and P. B. Wood, M.D.—both of whom, the booklet claims, are "Members of the College of Physicians and Surgeons of Ontario." While neither of these physicians' testimonials declare that the stuff is a cure or even a treatment for consumption, the evident intent of the booklet is to make the consumptive so believe. Whether the giving of these testimonials indicates a failure to recognize professional responsibility or a mere lack of common sense, we do not know; the solution of such questions may safely be left to the organization to which these men are said to belong.

A fake "consumption cure" is vicious enough under any circumstances. Every physician who has treated consumptives knows how difficult it is to persuade the sufferer that his chance for recovery rests not on medicine but on hygienic and dietetic measures. It is a human failing to believe that every disease may be cured by taking something out of a bottle, and the consumptive is particularly susceptible to the wiles of the "patent medicine" faker. But, if under normal conditions and exploited to civilian consumptives the "consumption cure" business is a cruel deceit, what shall be said of the concerns which seek as victims those men who have acquired tuberculosis in the service of their country? The human carrion that robs the wounded on the field of battle at least takes his life in his hands in so doing; not so the "consumption cure" quack who plies his trade on the invalided soldier.

Anthrax.—This disease, as shown by the Public Health Bulletin of Massachusetts for October, has become increasingly prevalent in the state since the beginning of the war. The cases varied between six and eleven for the years 1908 to and including 1915, when they reached the latter figure. In 1916 the number was thirty-one and for the first nine months of 1917 the number was thirty-nine. The increase has been coincident with the increased shipment of hides from foreign countries whose status with regard to the incidence of anthrax is not well known, the demand for leather having forced manufacturers to seek new sources of supply. In 1917, six of the thirty-nine reported cases were fatal. There was one case of pulmonary anthrax; the remainder were external The pulmonary case and thirty-four of the others resulted from the handling of hides, three from the handling of hair and one from handling wool. Accurate diagnosis depends on the bacterial findings. It is said that English investigators have reported cases of anthrax simulating cerebrospinal meningitis, the diagnosis not being established until the anthrax bacilli were demonstrated in the spinal fluid. The United States Bureau of Animal Industry recommends for the prevention of infection that hides be immersed for not less than forty-eight hours in a 1:1,000 solution of mercuric chlorid, or for a like period in a 10 per cent. salt solution containing not less than 2 per cent. of hydrochloric acid. The British Local Government Board directs that in the steam disinfection of hair, cases or bales should be opened and the bundles removed and most of the strings cut unless the temperature inside the steam apparatus is maintained at 230 F. for half an hour.

Correspondence

THE CARREL-DAKIN TREATMENT

A Reply to Dr. Bevan by Dr. Joseph C. Bloodgood

To the Editor:—I cannot agree with my friend and colleague, Dr. Arthur Dean Bevan, but I am rather inclined to the view that his open letter to Dr. Welch (THE JOURNAL, Nov. 17, 1917, p. 1727) will do good. A fair controversy leads to the crystallization of the opposing opinions, and often hastens the proper solution of the problem.

I cannot agree with Dr. Bevan that Carrel's method is against the views of surgical pathology and wound repair. I confess, I am somewhat confused myself as to what the real surgical pathology of wound repair is.

Bevan speaks of surgical pathology resting on the work of such men as Lister, Paget, Billroth, Fenger and Senn. Senn's chief work was in the surgical pathology of tumors, and his experimental work chiefly in intestinal suture, fracture of the neck of the femur, and pancreatitis. Fenger's pathologic work began at the necropsy table and continued as that of an operating surgeon interested in the pathology of the diseases that he attempted to cure by operation. Neither was particularly interested in wound repair and wound infection, and, as most of us today, had little or no experience with wounds of the character seen in this war. Billroth, perhaps the greatest of all surgical pathologists, missed a great opportunity in his military experience to establish the noninterference methods in the old type of perforating bullet wound.

As I read Lister, I am impressed with the conclusion that his observations and results very strongly suggest the great value of an antiseptic. In all of Lister's experience he was never confronted with wound problems such as confront us in this war. Schede's work on blood clot in osteomyelitis is evidence that an antiseptic can sterilize a wound. In conversation, Dr. Halsted, professor of surgery at Johns Hopkins University, fully agreed with me as to the statements I am now making. I know of no surgeon of his time in America who has devoted more attention to the problems of wound healing and the treatment of infected wounds than has Halsted. His early contributions to the treatment of joint infections prove this. Halsted looks on Carrel's work as most scientific and as the greatest contribution to wound treatment in this war.

Dr. Bevan is of the opinion that it was a serious mistake for the government Medical Service to adopt the Carrel treatment and to force "a complicated, time-consuming, expensive plan" on our Medical Service. I cannot agree with Dr. Bevan. In the first place, I do not know that the Surgeon-General has "adopted" the Carrel method. After rereading Carrel's book a number of times, with frequent visits to his experimental hospital in New York, and after using his method, I am of the opinion that the Surgeon-General has given the surgeons of this country the best opportunity as yet ever offered them for the study of wound repair and wound treatment by ordering officers of the Medical Corps to take a course of instruction in the Rockefeller War Hospital; the courses given in Philadelphia will also be of inestimable value.

As Piper of Philadelphia said after his experience in the hospitals in France: *war* surgery is *ward* surgery.

In peace surgery the chief work of the operator and his assistants consists of the preliminary examination of the patient and the skilled surgical technic and anesthesia during operation. There are few open and infected wounds to treat, and as a rule the senior surgeon pays little attention to them, and the junior surgeons have much to learn.

In industries there has been a tremendous improvement in the surgical departments, and with this the same improvement in the healing of the wounds. Industrial surgeons of experience, such as Sherman of Pittsburgh and Noland of Birmingham, express the opinion that the Carrel method has led to improvements in their results.

I cannot agree with Dr. Bevan that *one morning* spent at the Carrel Institute gives sufficient opportunity to judge the value of the method, and I see no impropriety for Dr. Hartwell to consult during the operation with a French army officer as to some of the details in starting the Carrel method.

Nor can I agree with Dr. Bevan in regard to his conclusion on Carrel's book. Carrel had an excellent team, and attacked the problem in a most scientific and broad way. He employed controls.

When Carrel started his investigation, the majority of military surgeons were by no means satisfied with any of their methods, or with their results. The excision of the wound in the stage of contamination, or the thorough cleansing of the wound in the stage of infection and its wide opening were methods already employed when Carrel started. His contributions to the open wound treatment are: a most effective instillation tube; the adjustment of the tube or tubes so that every portion of the surface of the wound in every nook and corner is continuously bathed in an antiseptic solution that is most potent in its effect on the bacteria and least injurious to the granulation tissue and to the power of the cells and fluid against the bacteria themselves. Carrel, apparently, was the first to prove with bacteriologic control that an open wound could be practically sterilized and then closed.

In the huge wounds of this war, there seems no question that the sooner they are closed the better. The opponents of the Carrel method do not question the scientific precision of his technic, or his results; they claim, however, that his technic can be followed out successfully only in a stationary hospital with a large personnel, and that it is expensive in time and material. In addition, they claim that the technic is difficult; that his solution requires an expert to prepare it, and that it must be guarded, or its effective strength may be lost.

Carrel's method and results have been the chief stimulants to investigation by others for a method that will be equally good, but simpler and less expensive. The investigators who are advocating dichloramin-T take this ground.

In reading the contributions and studying the motion pictures presented by Captain Furnes and Lieutenant Lee, one is impressed by the fact that their investigation has led to a marvelous improvement in the technic of treating the ordinary accidental or industrial wound; and they have accomplished this with economy of time and material. But up to the present time I am unable to agree with them that the methods with dichloramin-T accomplish the same result in the huge open wounds which often contain necrotic tissue, and it is chiefly for this group of wounds that Carrel developed his technic.

I am not claiming that Carrel's method will be the ultimate solution of the problem, but I do claim that up to the present time it is the one great contribution to wound treatment, and that the ultimate treatment will be due to, and based on, Carrel's clinical and scientific research; and every surgeon who expects to treat wounds in this war should have special training in all the laboratory and clinical details of the Carrel method. Joseph Colt Bloodgood, M.D., Baltimore.

A Reply by Dr. A. T. McCormack

To the Editor:—In The Journal, Nov. 17, 1917, appears a letter by Dr. Arthur Dean Bevan in regard to the Carrel-Dakin treatment. This letter is based on such a complete misconception of Dr. Carrel's work and motives, and is so untimely and ill considered that one who does not know and admire Dr. Bevan, as I do, might wonder whence the source of his inspiration in attempting, in an academic discussion, to throw confusion into the Medical Department of our Army in regard to such an important scientific question. I respectfully submit that no man, however distinguished himself, is the final judge on scientific matters, and that especially if he be in a position of great responsibility, conferred upon him by the profession, he has no right to give publicity to a personal letter which lends the weight of his authority to a destructive criticism without a semblance of investigation or knowledge of a conscientious scientific investigator and his associates, and a method of management of infected war wounds, which, in the hands of those skilled in its application, has demonstrated its value. His misconception of Dr. Carrel's technic and purposes is the only thing made plain in this letter.

In all the real scientific principles involved, wherein Dr. Bevan correctly interprets the findings of scientific clinical surgeons the world over, his conclusions had already been as well stated by Dr. Carrel in recording the results of his investigations.

Over and over again, Dr. Carrel emphasizes and reemphasizes the problems of surgical pathology, and exhibits a profound critical, scientific knowledge of them. Over and over again, he states that Dakin's solution and the Carrel technic are modifications in method, and in no way change the principles underlying modern surgery. Over and over again, he states that some other antiseptic applied by another modification of technic may eventually be found more practical than the one which bears his name; but he insists, and so will every one who really knows his work and who is interested in a proper conclusion of this matter, that whatever the technic, whatever the antiseptic proposed, its value shall be judged by exact, modern, scientific methods and not by the *ipse dixit* of some scientific clinical surgeon or surgeons, simply because he or they are willing, without a claim to personal knowledge or a pretense of scientific investigation, in the emergency of a great war where so much is at stake, to base the condemnation of a scientific method on a mere analysis of a little *précis* or manual which plainly states that its chief purpose is to refresh the memory of those who have participated in the course of study of the treatment under one who has had it demonstrated to him until he has mastered it.

If one were so unjust to Dr. Bevan as to characterize this publication of a personal letter based, as he says, on letters from Joe this, and Fred that, and one operation done by Josh somebody else, and the hurried and superficial reading of a book whose whole purpose and character he so evidently misconceives, he would not do justice to so charming a man.

The Carrel-Dakin treatment is not advanced as a miracle or cure-all, nor is it expected that it will take the place of all other methods in the treatment of wounds and injuries. It is above all not expected that it shall be utilized by that class of scientific clinical surgeons who base their opinions on the internal evidence of books, rather than on knowledge of and experience in a method that can be seen with the eyes of the trained observer and correctly verified with the microscope and in the chemical laboratory. Boric acid, aluminum acetate, Dakin's solution, Labarraque's solution, brilliant green, iodin, phenol, chloramin-T and dichloramin-T, hydrogen peroxid, normal salt solution, sterile water, mercuric chlorid and many other antiseptics, of varying dilutions and value, have been so thoroughly tried out and the results of their applications so fully charted, by exactly the same painstaking methods, and by a scientific staff and allied investigators, that the surprise of his life awaits any scientific clinical surgeon who bases his confidence in the future of surgical development on the history of the science, rather than on the scientific practice of the art.

All surgeons agree that the vast majority of war wounds are infected. This fact has been proved in every war hospital in Europe, and, before that, was known to every man who has rightly read the history of war. After the mechanical cleansing, which is entirely surgical, based on the well known principles of surgical pathology and which Dr. Carrel would evaluate not at 90 per cent., but as the *sine qua non* of success with any method of antiseptic treatment of wounds, he insists that the next step is sterilization of the wound. This does not mean *apparent* sterilization, but *surgical* sterilization under bacteriologic control. Each day or two days, smears are made from various parts of the wound, and the bacteria present are stained and counted. If streptococci, staphylococci and bacilli are absent, one must find not more than one other microbe to five or ten fields before the wound is surgically sterile. If this degree of sterility is secured before the twelfth day, there is rarely cicatricial tissue about its edges, the skin is not adherent, and the wound may be closed with adhesive plaster or sutures, as is most desirable. After the twelfth day, it is necessary to dissect away the cicatrices about the edge of the wound, and it is the better practice only to insert the sutures, continuing the application of the antiseptic for a few days, to be sure that sterility is maintained before they are tied. Surgical pathology would, of course, dictate that in the presence of edema there would be no wound closure.

Dr. Carrel states that the conditions requisite for action of any antiseptic are contact, proper concentration of solution and a sufficient time. He states it so frequently that the most superficial observer should know that he believes he has proved that the wound must be so prepared by the practical application of the principles of modern scientific surgical pathology that the antiseptic being tested must come in contact with the tissue itself, and that all necrotic tissues and foreign bodies must have been removed and hemostasis be perfect.

In the Carrel technic, the Dakin solution is brought into contact with all parts of the wound through the insertion of rubber tubes of certain dimensions, having perforations of exact sizes at certain intervals, so that the desired concentration of solution will reach every part of the wound every two hours. This contact of the antiseptic in this exact concentration of solution shall be continued for the time necessary to bring about asepsis. Dr. Carrel states, always, that this is no new treatment. It is well known that Chattanay discovered the action of chloramins long ago, but the *systematization is, however, new,* and it is perfectly evident to the most casual reader that it is as new to many of our most distinguished scientific clinical surgeons as to the thousands of wounded soldiers who have been restored to the front by its application, where other methods left them languishing in the hospitals or resulted in loss of limbs or life.

But Dr. Carrel has gone much farther in his search for a definite means of expressing the value of an antiseptic. He has found from extensive study of the actual wounds themselves, working with others to whom he gives most of the credit, that there are definite laws of cicatrization. A surgically sterile wound, carefully measured, and its area determined by a planimeter, at four day intervals, will cicatrize at a rate which is capable of expression in a mathematical curve, and may be demonstrated by a mathematical formula. Practically, each surgically sterile wound is measured, its area plotted, and this is repeated and recorded every four days. With these and certain other factors known, the normal curve of cicatrization of that particular wound is calculated. Afterward, repeated measurements at four day intervals show how much the treatment applied by the surgeon *delays* cicatrization. Dr. Carrel states definitely and repeatedly that *no known treatment hastens cicatrization,* but that surgical sterilty is an essential prerequisite to the normal rate of cicatrization.

This method of mathematical control of cicatrization is applied not only to wounds in general but to each particular wound, so that the scientific surgeon, properly advised by a practical bacteriologist, is able to know when normal cicatrization has been delayed either by the *laissez faire* policy of some scientific clinical surgeon leaving behind necrotic tissues to be cared for or foreign bodies to become encapsulated or by any other condition demanding surgical interference.

I am not attempting to give any further details than are necessary to show that the Carrel-Dakin method of treatment of war wounds is based on scientific data, against which the fiat of any one cannot and should not prevail. Repeated contact with Dr. Carrel leads us to recognize in him a degree of scientific precision and personal modesty that would prevent his replying in kind to such a letter.

Exactly such a misconstruction of Lister's work as is attempted in the Bevan letter has ever since kept many surgeons from getting the benefit from antiseptics that Lister did, while other practical men, refusing to be misled, have continued to secure Lister's results by the real application of Lister's methods, disregarding his necessarily faulty lines of reasoning in regard to them.

Dr. Bevan, by this attack without study or practical knowledge of his subject, is but repeating history. Semmelweis, Jenner, McDowell, Crawford Long—every man who has advanced the practical art of medicine, has had some one of the priests-of-the-vested right-in-knowledge to condemn him and his methods and results in unmeasured terms, and our profession has rarely recognized during their lifetime its best promoters except by the contumely and condemnation of the self-righteous.

It is important for the profession to understand that its final verdict on Dr. Carrel's definite method of the treatment of infected war wounds by the use of Dakin's solution is likely to be more influenced by erroneous comment from three sources than by the merits or demerits of the method itself. These are likely to come, first, from those who condemn academically without either investigation or knowledge; secondly, from those who accept the suggested treatment because it is novel and new without knowledge or investigation, and who, without understanding the reason, change or modify the technic so that it becomes wholly inadequate; and, thirdly, from those who honestly think they have investigated the Carrel-Dakin technic when really they have studied the work of some one of the second class. It is a serious question whether such a method, requiring what seems to one first seeing it a somewhat complicated technic is not more in danger of being misjudged from the statements of its ill advised and frequently overenthusiastic advocates, than of its ill informed and reactionary opponents.

Arthur T. McCormack, M.D., Bowling Green, Ky.

FUND FOR BELGIAN AND FRENCH PHYSICIANS

To the Editor:—In order to further the subscriptions to the fund being collected by Dr. W. W. Keen of Philadelphia for transmission to our Belgian and French colleagues to help them in reestablishing themselves in their homes and offices. I should be very glad if you could find space for the enclosed letter from Dr. Triboulet of Paris. Dr. Triboulet is a distinguished physician of the Hôpital Trousseau, and was in this country at the time of the International Congress on Tuberculosis in 1908.

Henry Barton Jacobs, M.D., Baltimore.

Dear Dr. Barton Jacobs:—After three years of the most frightful cataclysm, France is always up. She has saved herself and the civilized world; at which cost you may think of it by the narrations you may read; they are nothing compared with the reality. Some of the oldest and richest provinces (in soil, industry, and art) are now a desert. Today, tomorrow and days after tomorrow we must use all our energy and money in building again and in helping those who are in awful distress. Among the latter are the medical faculties, and I hesitate no more to send you and the U. S. confrères the most earnest appeal. If indiscretion is not too great, will you allow me to ask you to be an intermediary for this international medical problem: to give our spoiled confrères the necessary means to come back and live in their devastated homes. The French medical associations will collect nearly a million francs by corporations, private funds.. In our northern invaded departments (Oise, Somme, Pas de Calais, Aisne, Nord, Marne, Ardennes, Meuse et Meurthe et Moselle), there are 2,000 doctors. From these 2,000 confrères, *1,000,* at least, will want material help to begin again their professional life, and we think five thousand francs—5,000 Fs.—the necessary sum of money for each one. The million we possess is every day lessened by the necessity of immediate help to the expelled medical families, when repatriated day after day, or week after week.

I hesitated a long while before writing this: U. S. A. did do, and will do so much for France, that one is quite ashamed to ask again. But proudness is unreasonable in such questions, and I make myself very humble for the sake of the confraternal misfortunes. A sort of incitement came a few days ago when the Uruguay confrères sent us spontaneously 35,000 francs in a cheque.

My family gave three "poilus" to dear France; one, aviator, one artillery officer; both wounded and cured, and started again; the third in Engineers Corps, a young 18½ fellow.

Magnin's son is a brave little one; he is in the Saloniki Army in the medical staff. French, and I am sure U. S. youth is full with ardor and confidence. "On les aura" is the common expression. Don't judge our people in books or in newspapers; one must see him at work; that is *splendid.* In a near future, you will come and see that, and you will find here an old man very, very happy to see you at the well deserved peace-hour. Long live the sister republics!

Henri Triboulet,
25, Avenue d'Antin, Paris.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alabama: Montgomery, Jan. 8. Chairman, Dr. S. W. Welch, Montgomery.

Colorado: Denver, Jan. 8. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

District of Columbia: Washington, Jan. 8. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

Hawaii: Honolulu, Jan. 10-13. Sec., Dr. G. A. Batten, Box 375, Honolulu.

[illegible] Jan. 8-10. Sec., Dr. Wm. T. Gott, 84 State H[illegible]

Minnesota: St. Paul, Jan. 2-4. Sec., Dr. Thomas McDavitt, 741 Lowry Bldg., St. Paul.

Missouri: St. Louis, Dec. 17-19. Sec., Dr. George H. Jones, 206 Washington St., Jefferson City.

National Board of Medical Examiners: New York City, Jan. 9-17. Sec., Dr. J. S. Rodman, 310 Real Estate Bldg., Broad and Chestnut Sts., Philadelphia.

New Mexico: Sante Fe, Jan. 14. Sec., Dr. R. K. McClanahan, East Las Vegas.

New York: Albany, Buffalo, New York City and Syracuse, Jan. 29-Feb. 1. Sec., Dr. W. J. Denno, Education Bldg., Albany.

North Dakota: Grand Forks, Jan. 1. Sec., Dr. G. M. Williamson, Grand Forks.

Oklahoma: Oklahoma City, Jan. 8-9. Sec., Dr. J. J. Williams, Weatherford.

Oregon: Portland, Jan. 1. Sec., Dr. Herbert S. Nichols, Portland.

Pennsylvania: Philadelphia, Jan. 8-10. Sec., Nathan C. Schaeffer, State Capitol, Harrisburg.

Rhode Island: Providence, Jan. 3. Sec., Dr. B. U. Richards, State House, Providence.

South Dakota: Pierre, Jan. 8. Sec., Dr. P. B. Jenkins, Waubay.

Utah: Salt Lake City, Jan. 7-8. Cor. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

Washington: Spokane, Jan. 1. Sec., Dr. C. N. Suttner, Baker Bldg., Walla Walla.

Wisconsin: Madison, Jan. 14. Sec., Dr. J. M. Dodd, 220 E. Second St., Ashland.

Connecticut July Examination

Dr. Edwin C. M. Hall, secretary of the Connecticut Homeopathic Medical Examining Board, reports the written examination held at New Haven, July 10, 1917. The examination covered 7 subjects and included 70 questions. An average of 75 per cent. was required to pass. Four candidates were examined, all of whom passed. Two candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
New York Homeopathic Medical College and Flower Hospital (1916) 87.2; (1917) 76.5, 80.1, 83.4.			

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Boston University		(1912)	Mass.
New York Homeopathic Medical College and Hospital		(1904)	New York

West Virginia July Examination

Dr. S. L. Jepson, health commissioner of the West Virginia Public Health Council, reports the oral, practical and written examination held at Charleston, July 10, 1917. The examination covered 10 subjects and included 100 questions. An average of 80 per cent. was required to pass. Of the 38 candidates examined, 31, including 3 osteopaths, passed, and 7 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Georgetown University	(1910)	80.2
Chicago College of Medicine and Surgery	(1917)	89.3
Loyola University (1915) 85.8;	(1916)	86.6
Kentucky School of Medicine	(1898)	84.8
University of Louisville (1913) 85.8;	(1917)	88.8
Maryland Medical College	(1904)	89.2
University of Maryland (1917) 80.3, 81.5, 81.7, 83, 84.9, 89.4.		
Eclectic Medical College	(1917)	90.6
Ohio State University	(1917)	89.8, 91.5
Medical College of Virginia (1915) 81.5; (1916) 82.1; (1917) 81.9, 82.5, 83.9, 86.5, 86.8, 87.2, 88.5.	(1917)	81.3
McGill University	(1917)	84.8
FAILED		
Chicago College of Medicine and Surgery	(1917)	76.9
Loyola University	(1916)	77.3
University of Louisville	(1909)	77.4
Maryland Medical College	(1911)	77.1
University of Maryland	(1917)	76.8, 84.3*
Medical College of Virginia	(1917)	73.4

* The board reports that although this candidate passed the examination creditably, he was refused a license because of evidence that he had been illegally practicing in the state for twelve months, and because of his moral character.

Book Notices

The Elements of the Science of Nutrition. By Graham Lusk, Ph.D., Sc.D., F.R.S., Professor of Physiology at Cornell University Medical College, New York City. Third Edition. Cloth. Price, $4.50 net. Pp. 640, with 28 illustrations. Philadelphia: W. B. Saunders Company, 1917.

Lusk was a pupil of Voit and the Munich school of metabolism. He returned to America with the spirit and principles of thought which made that school great, continuing here to perform productive experimental work. He has trained a corps of younger men along similar lines, and by this book has greatly helped the spread throughout the country of a sound knowledge of the elements of the science of nutrition. The issue of the present war will depend in a large degree on the ability of nations to solve problems of alimentation, to apply and develop further such facts and principles as form the subject matter of this book. It is fortunate that we have a body of men trained in these lines to apply and teach the facts of metabolism and discover new ones as needs arise. The fact that we have them has been due in no small measure to the influence of this author and this book. The value of the latest edition is increased especially by its authoritative presentation of much newer data won by E. F. Du Bois, J. R. Murlin and other men more or less directly affiliated with the writer. At the present time, perhaps, interest will center in the chapter on a normal diet, the new chapter on food economics, with special reference to the war, the chapter touching the nutritive value of various materials used as foods, that on food requirements during the period of growth, and on the revised food tables. The sections dealing with the metabolism taken as a whole, particularly as revealed by the respiration calorimeter, show, as in previous editions, the hand of the master. They outshine in excellence those parts of the book that deal with the mechanisms of chemical reactions within the body.

In the preface the author states that he has no intention of again revising this book, because in another decade the development of scientific knowledge will probably permit the formulation of the subject from the standpoint of physical chemistry. It is to be hoped that progress may be sufficiently rapid to fulfil this interesting forecast. In the meantime the present volume must be regarded as a notable achievement which should be made available in every laboratory, diet kitchen and home in this country.

The Principles of Acidosis and Clinical Methods for Its Study. By Andrew Watson Sellards, Associate in Harvard Medical School, Department of Tropical Medicine. Cloth. Price, $1. Pp. 117, with 1 illustration. Cambridge: Harvard University Press, 1917.

Under normal conditions, the ingestion of 5 grams of sodium bicarbonate is followed promptly by a change in the reaction of the urine from acid to alkaline as tested by litmus. In the nephritis of Asiatic cholera and in certain other forms of nephritis not due to cholera, Sellards has noted an increase of the tolerance for bicarbonate, that is to say, massive doses of this salt may be required to make the urine alkaline to litmus. He interprets this phenomenon as due to nephritic acidosis rather than to nonexcretion of the base; and, departing from these experiments, Sellards advocates determining the tolerance of the body for sodium bicarbonate as the most delicate and practical clinical method of diagnosing acidosis. One may thus detect deficiencies of from 20 to 30 gm. in the bicarbonate reserve of the body. The author claims priority over Henderson and Palmer in the use of this method.

The book has an introductory chapter on the development of the modern conception of acidosis, and some elementary facts concerning acids and bases. A current view of the mechanism by which the reaction of the blood is kept constant and by which the body maintains its equilibrium of acids and bases is briefly stated. There is a definition of acidosis in agreement with L. J. Henderson, D. D. Van Slyke and others, and of the principles underlying its clinical diagnosis, together with the pros and cons of several methods of estimating acidosis. The writer strongly endorses an appropriate use of alkali in the treatment of certain acute types of nephritis, thus recalling the views of M. H. Fischer, although Sellards denounces the use of hypertonic sodium chlorid.

A bibliography contains references to seventy-one contributions on the subject of acidosis prior to 1917. The book serves the purpose of bringing together in convenient form what every physician should know about acidosis. It is marred slightly by its use of an obsolete chemical nomenclature, such as oxy in place of hydroxy butyric acid.

The Sense of Sight. By Frank Nicholas Spindler, Professor of Psychology and Education, State Normal School, Stevens Point, Wis. Cloth. Price, $1.25 net. Pp. 156, with 25 illustrations. New York: Moffat, Yard & Co., 1917.

In endeavoring to convey what the sense of sight means to us, the author has given a sketchy description of the anatomy, physiology and physics of the eye; of the predominant influence of vision in the acquisition of knowledge of external things, and of its part in the development of mentality and the emotions. He says, and has attempted to show by experiments made according to a method which he lays down, that about 60 per cent. of persons are visual minded as distinguished from auditory or motor minded; that is, they acquire knowledge by seeing things or reading about them rather than by hearing or doing them. This is not wholly a desirable state of affairs, but is fostered by modern modes and habits of life and the constant flood of newspapers, magazines and books, which every one reads for himself, thus permitting to fall into disuse the arts of listening, of conversation, of writing, and, be it said, of thinking. He makes a plea for the extension of coordinate education of eye and ear and hand, as taught by Pestalozzi, Froebel and Montessori. The visual type of mind is quicker to learn, but is apt to be more superficial. Few noted scientists or scholars are of the visual type; but artists, architects and designers are apt to be. It is highly desirable to cultivate the acquisition of knowledge through the sense of sight and to take proper care of its organ, but it is important also to develop all the other senses, to give a rounded, complete intellectual background for what the eye visualizes.

Medicolegal

Privileged Knowledge and Roentgenograms—Right to Select Physicians

(Stapleton vs. Chicago B. & Q. R. Co. (Neb.), 162 N. W. R. 644)

The Supreme Court of Nebraska holds, in this personal injury case, that when a party submits to an examination, or inspection, by a physician, for the purpose of learning the state of his health or the physical condition of any part of his anatomy, the knowledge thus acquired by the physician is privileged, and, under Section 7898 of the Revised Statutes of Nebraska of 1913, the physician is not permitted to testify to the condition he found, over objection based on the statute. And when a plaintiff has permitted a physician to make a roentgenogram of his injured foot for the purpose of ascertaining the extent and character of his injuries, the roentgenogram so made is not admissible in evidence over objection of the plaintiff based on the statute.

The court says that the statute cannot be given a strained construction, but must be taken in its plain and ordinary sense. When it says that a physician shall not be allowed to give testimony or to disclose confidential communications properly intrusted to him in his professional capacity, and necessary and proper to enable him to discharge the functions of his office, it means to exclude the disclosure of any information that comes to such physician by reason of the professional capacity in which he acts. It does not matter whether the patient seeks a prescription for a disordered stomach or a roentgenogram of an injured foot. Nor does the statute make any distinction between a regularly retained physician of a railroad company, who is paid for his services by the railroad company, and a physician paid by the patient. And the same rule which would exclude the oral testimony of the physician would exclude the roentgenogram of the plaintiff's foot. Its introduction in evidence would be a disclosure of a confidential communication.

The defendant complained because on cross-examination it was not permitted to inquire whether the plaintiff had submitted himself for examination to specialists for the purpose of qualifying them as witnesses, and that he did not intend to produce these witnesses on the trial. This line of examination was not pertinent to anything developed in the examination in chief of the witness. He had the right to select his own physicians and his own witnesses. If counsel for the defendant disbelieved the testimony of the physician who testified as to the character and extent of the plaintiff's injuries, he might have procured the testimony of men eminent as physicians and surgeons by application to the court for the appointment of a commission to make an examination of the person of the plaintiff.

Authority to Treat Employee Beyond Thirty-Day Period

(In re Carpenter's Estate (Mich.), 162 N. W. R. 963)

The Appellate Court of Indiana, Division No. 1, says that the industrial board of the state certified to it the question of law as to whether a physician who treated an injured employee eighty-seven days from the date of the injury was entitled to have his claim for $171 for the last fifty-seven days' treatment approved as against the employer, under substantially the following statement of facts: The employee by an accident arising out of and in the course of his employment sustained severe third degree burns over his face, head, chest and hands. His employer had actual personal knowledge of the injury at the time it occurred, and employed the physician to treat the injuries, saying to him: "Take this man to the hospital, give him close attention, and do the best you can for him." The employer did not, at that time, or at any other time, expressly say to the physician that he should discontinue his treatment at the expiration of the first thirty days from the date of the injury, or that he should continue his treatment after the expiration of thirty days, but on frequent occasions, both before and after the expiration of the thirty days, inquired of the physician as to the condition of the employee and what progress he was making toward recovery. At the expiration of thirty days, the condition of the employee was such as to make continued treatment absolutely necessary. As a result of the treatment, the employee recovered with practically no scar tissue and without serious disfigurement. The employer admitted that the physician's bill of $171 for the treatment for the last fifty-seven days was reasonable and a proper charge under Section 26 of the Indiana workmen's compensation act, but he denied liability therefor.

The court thinks that the language used by the employer immediately following the injury, in directing the physician to treat the injured employee, standing alone, would warrant the inference that the treatment should continue so long as necessary to effect a cure or give the injured person every possible chance to be cured. Such statements of the employer, considered in connection with the character of the injury, the employer's knowledge thereof, and of the continued treatment by the physician beyond the thirty-day period, and his apparent solicitude about the treatment and the patient, were at least sufficient to warrant the proper tribunal in inferring the fact that the employer duly authorized the physician to continue the treatment for the full period for which he asked an allowance.

However, unless this court can say that the foregoing is the only inference that may reasonably be drawn from the facts stated, it is not warranted in going further than to decide as a question of law that such inference may or may not reasonably be drawn from the facts as stated. The determination of questions of fact by the board is conclusive, and in view of this rule the court deems it proper to leave the finding of the ultimate fact to the board, with the further statement that if, in the judgment of the board, the services of the physician beyond the first thirty-day period were authorized by the employer, the question of law propounded by the board should be and is answered in the affirmative; otherwise, in the negative.

Society Proceedings

American Association of Anatomists, Minneapolis, Dec. 27-29.
American Physiological Society, Minneapolis, Dec. 27-29.
Porto Rico Medical Association, San Juan, Dec. 22-23.
Society of American Bacteriologists, Washington, D. C., Dec. 27-29.
Western Surgical Association, Omaha, Dec. 14-15.

SOUTHERN MEDICAL ASSOCIATION

Eleventh Annual Meeting, held at Memphis, Tenn., Nov. 12-15, 1917

The President, Dr. Duncan Eve, Nashville, in the Chair

Tumors of the Urinary Bladder

Drs. Edward S. Judd and **S. W. Harrington**, Rochester, Minn.: From a therapeutic standpoint, bladder tumors may be classified as those satisfactorily treated by endovesical methods and those requiring open operations. The benign papilloma will usually respond to fulguration. Multiple papillomas, or individuals not tolerant to this kind of treatment, are better treated by open operation. All our bladder tumor cases are examined cystoscopically at definite intervals following operation to detect a recurrence. In the past few years we have found fourteen recurrences that were amenable to fulguration. In case the benign tumor does not respond readily to fulguration, it should be removed by an operation. They may be malignant. All definitely malignant papillomas, either of the papillary type of carcinoma or of the type infiltrating the bladder wall, are best treated by open operation at once. All large benign tumors, such as myomas, fibromas and angiomas, should be removed by suprapubic operation.

The operative procedure for tumor of the bladder consists of excision of the tumor and resection of the portion of bladder wall from which the tumor arises. A simple excision of the tumor is permissible only in the case of a papillary tumor on a pedicle. Even with this form of tumor, it is better to excise a portion of the adjoining bladder tissue. This means invasion of the prevesical space; but with modern technic, it adds little, if anything, to the operative risk. If the resection is not extensive, the remaining opening can be closed, and drainage established through the bladder. If a large segment of bladder is removed, it is better to drain the space for several days. The drain can be brought out through the bladder or along the side of the bladder. If the prevesical tissues are exposed, drainage is essential.

Hypertrophic Pyloric Stenosis in Infancy

Dr. William D. Haggard, Nashville, Tenn.: Pyloric stenosis presents a picture so characteristic and clear cut that diagnosis should not fail. The symptoms may appear within a few days of birth, or be delayed until the second and rarely the third month. Vomiting is the first symptom usually noted. A previously healthy, normal, usually robust, breast fed boy begins to vomit abruptly in the third or fourth week without apparent cause. To the persistent, explosive, forcible vomiting are added symptoms of faulty nutrition, constipation, oliguria and steady loss of weight. Visible gastric peristalsis is a constant symptom. The wave passes from left to right, and may be elicited after food has been taken. Palpation a little to the right and above the umbilicus often reveals a tumor about the size and shape of a small green olive. The tumor is most distinct in the more severe cases, in patients with thin, retracted abdominal walls. It is variable in its position, and may be out of reach under the liver. If every patient with hypertrophic pyloric stenosis was operated on as soon as the diagnosis is made, the mortality might be reduced 10 or 15 per cent. Failure to seek prompt surgical relief is too often fatal. Even though the baby may apparently be holding its own under medical treatment, it may suddenly, and without apparent cause, become progressively worse and die in a short time.

Treatment of Acute Diffuse Peritonitis

Dr. H. A. Gamble, Memphis, Tenn.: The abdomen is opened under general anesthesia, the primary lesion is removed or repaired, split rubber drainage tubes with gauze wicks are introduced into Morrison's pouch, the pelvis, and wherever else indicated, and the work is completed as expeditiously as possible. Free drainage is maintained, elimination promoted, the strength of the patient sustained, and complications are guarded against. The patient is put in the sitting posture, and 500 c.c. of physiologic sodium chlorid solution are injected subcutaneously. This is repeated from every four to six hours. Plain warm water is started also at once by Murphy's method of proctoclysis. Dressings are changed frequently, from every one to two hours, for the first twenty-four hours. The most important complications to be guarded against, in the order of their frequency, are acute dilatation of the stomach, secondary abscesses, intestinal obstruction, and phlebitis.

Latent Manifestations of Syphilis in and About Joints

Dr. Edward S. Hatch, New Orleans: Joint syphilis is much more common than is generally supposed. In the roentgen findings and in the luetin reaction we have nearly positive diagnostic aids. A roentgenogram, a Wassermann test and a luetin reaction should be made in all suspected cases, and then, if there is doubt, the therapeutic test should be applied.

Use of Radium in Nonmalignant Uterine Hemorrhage

Drs. C. Jeff Miller and **E. L. King**, New Orleans: The nonmalignant conditions of the uterus causing menorrhagia or metrorrhagia may be thus grouped: 1. Cases in which there is little or no demonstrable pathologic change in the uterine wall, no history of infection, and in which the uterus is apparently normal in size and position, with normal adnexa. In such cases, the bleeding is, in all probability, due to some disturbance of the internal secretions, especially of the thyroid or of the ovary. This condition is often encountered in young girls about puberty. 2. The menopause. 3. Chronic metritis. 4. Hypertrophy or hyperplasia of the endometrium, especially when so marked as to be adenomatous or polypoid in character. 5. Fibroids, adenomas or adenomyomas of the uterus. 6. Chronic endometritis, especially after incomplete abortion. 7. Passive congestion of the uterus, as in retroflexion or prolapse. In the first three groups, radium may be used to the exclusion of surgery; in the fourth and fifth, some cases are suitable for radium and others require operation; while in the sixth and seventh groups, operation is indicated.

We have treated ten cases classified under the first two groups. In all of them the bleeding had persisted for years and had resisted every form of treatment. Nine of the patients were given intra-uterine radium treatments, the average dose being about 1,000 milligram-hours. In only one patient did the treatment fail to relieve the condition. Only one patient suffered from severe menopausal symptoms, although in several of them the symptoms were present in a mild degree.

Eighteen cases fall in the third and fourth groups. The patients ranged in age from 30 to 55, and most of them had suffered from bleeding for several years—as a rule, menorrhagia first, and later metrorrhagia as well. In every case, radium treatment was followed by amenorrhea; in two patients there was a recurrence of the bleeding about one year later, the flow being approximately normal. The others are still relieved. Six patients suffered from marked menopausal symptoms; five others were similarly affected, but the symptoms were mild and transient. The patients suffering most from the artificial menopause were nearly all between 40 and 51; this coincides with our experience after hysterectomy. In three women, aged 35, 45 and 51, the condition was relieved by corpus luteum extract. Eight patients suffered from leukorrhea for two or three months after the treatment. In those cases in which subsequent pelvic examinations were made, marked reduction in the size of the uterus was found, and the tenderness, as a rule, disappeared. The dosage in these cases was from 500 to 1,000 milligram-hours.

Rôle of Syphilis in Surgery

Dr. George Gellhorn, St. Louis: I have seen extensive suppurations of the abdominal incision resist all possible treatments for weeks, but turn into clean and vigorously granulating wounds when antisyphilitic treatment was instituted. I have in my care a woman with tertiary syphilis in whom several surgeons have unsuccessfully attempted to repair a third degree laceration of the perineum. I subjected this patient to energetic antisyphilitic treatment with the view of softening the cicatricial tissues about the vulva, and of forestalling disturbances of wound healing. In the course of this treatment, which included several injections of salvarsan, a laparotomy for pus tubes became necessary, and the patient went through this operation without the slightest complication.

(To be continued)

KENTUCKY STATE MEDICAL ASSOCIATION

Sixty-Seventh Annual Meeting, held at Louisville, Nov. 6-9, 1917

The President, Dr. P. H. Stewart, in the Chair

A Plea for Better Diagnosis.

Dr. R. M. Rankin, Covington: Standing in the foreground among the means for accomplishing the purpose of this plea is the grouping of physicians in institutions and in office buildings in cities and towns. Success presupposes a leader, with competent workers properly equipped. The superior diagnostician working alone is superior, perhaps in greatest measure, by reason of his doing as well as he may the work performed by specialists comprising the group. Specialists in particular fields probably succeed in making diagnoses by reason of special knowledge of the symptomatology pertaining to that field and by special effort to elicit the symptomatology. Better equipment oftener used would add materially to the efficiency of all of us.

DISCUSSION

Dr. W. A. Jenkins, Louisville: It is a good sign to see the universal interest that is being manifested in the making of proper diagnoses. Even the laity, after hearing addresses before civic audiences, health boards, and other bodies of a similar character, are now recognizing the importance, the necessity and the desirability of accurate diagnoses. It is only by education and careful training in all modern methods that accurate diagnoses can be made.

Dr. Bernard Asman, Louisville: It is not unusual to see a patient suffering from advanced cancer who has been treated and is still being treated for some simple ailment presumably the cause of the trouble.

The Precancerous State and the Increase of Cancer

Dr. A. H. Barkley, Lexington: When patients present themselves because of a condition that is suspicious of beginning cancer, or one that is likely to become so ultimately, they should be examined thoroughly and conscientiously, and the benefit of any doubt should be given the patient. By means of lectures the public should be taught the great benefit to be derived from periodic examinations from head to foot. In cancer, as in other diseases, attention to diet, exercise and proper hygienic surroundings is of distinct value.

Precancerous Lesions

Dr. Irvin Abell, Louisville: Notwithstanding the possibility of underlying general factors, cancer may, for all practical purposes, be regarded as local in its beginning. Prominent among the predisposing factors for which one should be on guard are: general lowered nutrition; chronic irritation and inflammation; repeated acute trauma; cicatricial tissue, such as lupus and other scars, and burns, benign tumors, warts, moles, nevi, etc.; also the fact that changes occurring in the character of such tumors and tissues, as well as the occurrence of any abnormal discharge from any part of the body, especially if blood stained, are to be regarded as suspicious. Some occupations, notably working in pitch, tar, paraffin, anilin or soot, and with roentgen rays, if not safeguarded, are conducive to the production of cancer, presumably on account of the chronic irritation or inflammation caused. The finding of any abnormal condition about the body should be taken as an indication for competent professional and not personal attention.

DISCUSSION

Dr. J. Garland Sherrill, Louisville: It should be the duty of the physician to educate his patient to keep away from sources of local irritation. Whatever the relationship between an injury to the tissues and the development of cancer, it is our duty to urge these patients to take care of this irritation or injury, in order that they may not develop malignant disease later.

Diagnosis of Gallbladder Disease

Dr. A. W. Nickell, Louisville: We are principally interested in two types of this disease, cholecystitis and cholelithiasis. Gallbladder disease is second in importance only to appendical inflammations. In the operations for gallbladder disease, there was sufficient pathologic justification for removal of the appendix in 69 per cent. of MacCarty's cases, and in 68.2 per cent. of Smithies' cases. While the gallbladder is the seat of stones in the majority of cases, inflammation of a noncalculous origin may occur. In 1,000 cases reviewed by Smithies, there were 434 cases of acute and chronic cholecystitis in which neither gallstones, "sand" nor malignancy was demonstrable. Out of this number of 434 acute and chronic cases, 228 were of the acute catarrhal type. Stones complicated in 51 per cent., and "sand" in 8 per cent. Cholecystitis will occur in old persons with the former state of health fairly good after indiscretion in diet. Symptoms similar to gallstones may be caused by pancreatic calculi; but these cases are so rare that they scarcely enter into the diagnosis. Floating kidney may simulate gallstones. The most difficult cases to diagnose are those in which the gallbladder, stomach and bowel are bound together by adhesions by either numerous attacks of gallbladder inflammation or ulcer. There is, then, a commingling of gastric and hepatic symptoms with hyperchlorhydria. We may have to differentiate the crises of locomotor ataxia. A good rule in all cases of supposed gallstone colic is to test the knee jerk, station and pupils. The Wassermann test is of value here.

Skin Lesions Due to Focal Infection and Septicemia

Dr. M. L. Ravitch, Louisville: Most cases fall under three heads. First is the type in which the lesion is confined so closely to the tissues near the focus of infection as to suggest very strongly infection along lymphatic channels or by contiguity of adjacent structures. The lesions are usually considerably elevated, more or less irregular in outline, fairly well defined, and nearly always distinctly red or pink, instead of purple or bluish as seen in other types. The second class includes lesions caused by hematogenous infection from one or more foci of infection. Instead of being confined to the locality of the focus, the lesions may appear in quite distant tissues; there may be recurrent crops well generalized, or fairly persistent patches in one or two areas. There seems a certain amount of predilection for the head, neck and upper chest when the focus is above the trunk; the abdomen is more apt to show the lesions in appendical or renal abscess. The third class is the most dangerous. Here we are dealing with a septicemia, sometimes quite mild, sometimes very virulent. In addition to the skin lesions, there is nearly always discoverable an arthritis, endocarditis, septic nephritis, or endometritis. Frequently the onset of the septicemia manifests itself by the appearance of scattered hemorrhagic elevated nodules in the skin, sometimes confined to one locality of the body, but more usually appearing on the face, abdomen, thighs and ankles, if not all over the body. Within a week the infection of the skin has reached its height, and it usually begins to ameliorate somewhat after that, although fresh lesions may appear from time to time. The importance of recognizing these lesions cannot be overestimated. They are not only frequently the first symptoms of a virulent endocarditis, but often they lead to the detection and removal of a hitherto unsuspected, but very dangerous, focus of infection, in mouth, throat, ear, sinus or elsewhere. It should be the routine with physicians, whenever a case of erythematous lesions or purpuric patches comes under observation, to make a thorough examination for such infectious foci.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

November, CLIV, No. 5

1 *Comparative Value of Wassermann, Colloidal Gold and Other Spinal Fluid Tests; Study of Two Hundred and Three Cases. E. M. Hammes, St. Paul, Minn.—p. 625.
2 *Causation of Edema in Chronic Parenchymatous Nephritis; Method for Its Alleviation. A. A. Epstein, New York.—p. 638.
3 Complement Fixation Test in Diagnosis of Tuberculosis; Study of One Hundred and Thirty-Five Cases. G. W. McCaskey, Fort Wayne, Ind.—p. 648.
4 Case of Scleroderma of Skin. A. S. Robinson, Cleveland.—p. 657.
5 Cure of Prolapse of Uterus. J. A. McGlinn, Philadelphia.—p. 673.
6 Gastric Polyposis; Report of Cases. J. M. T. Finney and J. Friedenwald, Baltimore.—p. 683.
7 Etiology and Treatment of Hemorrhagic Diseases. S. H. Hurwitz, San Francisco.—p. 689.
8 *Colon Bacillus Pyelitis Considered with Reference to Cases in Boy Subjects; Case Reports. G. W. Graves, New York.—p. 707.
9 *Studies of Cerebrospinal Fluid in Acute Anterior Poliomyelitis. J. A. Kolmer, A. E. Freese, T. Matsunami and B. M. Meine, Philadelphia.—p. 720.
10 Posttransfusion Reactions; Review of Two Hundred and Eighty Transfusions Performed in Wards of Presbyterian Hospital, New York. H. E. Meleney, W. W. Stearns, S. T. Fortuine and R. M. Ferry, New York.—p. 733.
11 Meningitis Sympathica; Report of Cases. I. Strauss, New York.—p. 748.

1. **Wassermann and Spinal Fluid Tests.**—This paper comprises the study of 203 cases: 43 paresis, 34 tabes, 27 cerebrospinal syphilis, 4 congenital syphilis, 11 meningitis, 3 tetanus and 81 other nonsyphilitic organic and functional conditions. The characteristic paretic curve of the colloidal gold reaction was found in 42 cases out of 43 spinal fluids examined. Four cases gave a negative Wassermann in the blood; all showed a marked positive globulin test; all but 5 had a lymphocytosis of over ten cells per cubic millimeter. Of the three atypical reactions, 1 occurred in a very early case, 1 was probably due to an old and infected spinal fluid, and 1 was made after vigorous intraspinal therapy.

In the miscellaneous group (76 cases) all findings were practically normal. The Wassermann in the spinal fluid in all cases was negative. One blood gave a positive Wassermann, the cell count was normal except in 2 cases of meningismus, in 1 brain tumor and in 1 spinal cord tumor; the globulin test was negative in all but 1. The colloidal gold test showed nothing definite except occasionally a slight decolorization in the lower dilutions. In 3 cases of multiple sclerosis all findings were negative, but in 1 case the colloidal gold test showed a typical paretic curve with a negative Wassermann test.

The effects of antisyphilitic treatment on these tests have been variable. In the main the syphilitic cases have been treated with salvarsan, intravenously and intraspinally (Swift and Ellis method), combined with mercury. In all cases there has been a gradual reduction of the cell count to normal. In the majority of cases the globulin test has become normal while in some it remained slightly positive. In 21 cases of paresis, treated thoroughly, all but 2 gave a negative blood Wassermann. However, in the spinal fluid it persisted positive in every case. Out of 22 cases of tabes treated, 16, or 73 per cent., gave a negative Wassermann both in the blood and spinal fluid. In only five instances of all antisyphilitic cases treated did the author notice any change in the colloidal gold curve, and in only 1 case did the curve become normal. Hammes concludes that no spinal fluid test (except the presence of bacteria) is specific. Every test is simply that much cooperative evidence and should be combined with the history of the case and the clinical findings.

2. **Causation of Edema in Chronic Nephritis.**—The problem in the treatment of edema in chronic parenchymatous nephritis is to relieve the condition and prevent its recurrence. The mere removal of effusion fluid by paracentesis and puncture, if feasible, may relieve it partly, but does not, as a rule, prevent a reaccumulation. The indications are: (1) to increase the protein content of the blood and thus help it regain its normal osmotic power, and (2) to remove or cause the reabsorption by the tissues of the excessive lipoids. The restoration of the protein content may be accomplished by two methods: (1) Massive infusion or transfusion of healthy blood accompanied by the removal of equal quantities of blood from the patient. The latter procedure is necessary to accommodate the introduction of additional blood so as not to embarrass the circulation. It also serves to remove some of the excessive lipoids. (2) Most important is the proper administration of a high protein and fat poor diet. The employment of transfusion is undoubtedly helpful and affords a good start in the treatment, but is not always feasible for obvious reasons. Chief reliance must therefore be placed on adequate dietetic measures. These consist in the administration of large quantities of properly selected proteins with a minimum of carbohydrates and the exclusion of fats. The fluid allowed is restricted to the quantity present in the food, plus that which is necessary for the comfort of the individual patient, amounting usually to from 1,200 to 1,500 c.c. The amount of salt allowed is the quantity sufficient to make the food palatable.

8. **Colon Bacillus Pyelitis.**—Pyelitis in boys, although far more infrequent than in females, Graves says, is, from the standpoint of the individual case, possibly even more important. In the male subject the possibility of extension of infection through the lumen of the urethra may be excluded, and in the treatment of all cases the intestine is to be recognized and dealt with as the potential source of the disease. The possibility of the occurrence of unusual and severe systemic manifestations in well developed pyelitis should be better appreciated. The best routine treatment for pyelitis in children is the administration of sufficient alkali to render the urine alkaline and maintain this reaction. If hexamethylenamin is employed the formaldehyd excretion should be watched and the urine should be examined frequently, with a view of forestalling injurious effects on the kidney parenchyma. In all obstinate cases autogenous vaccine should receive a thorough trial.

9. **Cerebrospinal Fluid in Poliomyelitis.**—In the recent epidemic of poliomyelitis in Philadelphia the examination of cerebrospinal fluids made by the authors yielded the following results: The majority of the fluids were water clear or but faintly opalescent when viewed against a black background; but 1 or 2 per cent. of blood free fluids presented distinct turbidity. Xanthochromia and excessive fibrin formation were not found; about 10 per cent. of the fluids presented a small fibrin coagulum after standing several hours. Of the fluids, 77 per cent. from all stages showed an increase of total cells; in 80 per cent. of these the counts were not above 100 cells per cubic millimeter of fluid. An increase of the total cells was found in the preparalytic stage, and this increase was present in 95 per cent. of cases for at least three weeks after the onset of paralysis, after which the number of cells gradually decreased. In over 96 per cent. of fluids from cases after the onset of paralysis the small lymphocyte variety of cells predominated. Polymorphonuclear cells predominated in less than 1 per cent. of fluids, and in over 88 per cent. constituted less than 25 per cent. of the cells present. An increase of protein was found in from 32 to 42 per cent. of fluids, and different tests for protein yielded varying results.

During the acute stages of poliomyelitis the fluids from 40 to 50 per cent. of cases yielded a colloidal gold reaction of the syphilitic and meningitic zone types. All yielded negative Wassermann reactions. The potassium permanganate reduction test yielded positive reactions of indexes over 2.3, with the spinal fluids of 41 per cent. of cases examined from the second to twenty-first days after the onset of paralysis; a high reduction index indicates an increase of protein in the fluid, and may aid, therefore, in the diagnosis of acute poliomyelitis. Every fluid was found to contain sufficient glucose to reduce Fehling's solution in some degree; partial reduction of the amount of glucose was suspected with a number of fluids on the basis of a qualitative test. Increased permeability of the meninges was indicated by the presence of natural antisheep hemolysin in the fluids of 66 per cent. of cases in the acute stages and both the hemolysin and a hemolytic complement in 30 per cent. Both of these substances were absent in the fluids of control persons. Substances inhibiting saponin hemolysis were not found in the fluids of cases two to twenty-one days after the onset of paralysis.

Boston Medical and Surgical Journal

November 15, CLXXVII, No. 20

12 *Study of Operative Treatment of Ostearthritis of Hip Joint. M. Ozarki, Japan.—p. 679.
13 *Treatment of Myelocytic Leukemia by Radium. H. Z. Giffin, Rochester, Minn.—p. 686.
14 Lymphocytosis; Clinical Study from Group Diagnosis. J. M. Read, San Francisco.—p. 691.
15 Vegetative Nervous System from Clinical Viewpoint. M. S. Woodbury, Clifton Springs.—p. 695.
16 Health Insurance and Medical Profession—from Financial and Administrative Point of View. R. M. Bradley, Boston.—p. 698.
17 Goiter Surgery; Report of Twenty-Eight Cases Operated, with One Death. G. Torrance, Birmingham, Ala.—p. 700.
18 Meningeal Syndrome and Other Sources of Error in Pyelitis. H. W. Dana, Boston.—p. 702.

12. **Operative Treatment of Ostearthritis of Hip Joint.**—Ozarki is of the opinion that in monarticular, nontuberculous cases it is always possible to relieve the disability of the leg by an arthrodesis, which can be repeated, if necessary. In polyarticular cases, if both hips are involved, the motion in one of the hips must be restored by some such operation as decapitation of the head of the femur. In cases of tuberculosis definite relief cannot be expected to the same degree as in ostearthritis, but the operation has produced no bad effect on the general or local condition, and has given marked benefit in the majority of the cases. Arthrodesis has appeared to be especially beneficial in cases which have arrived at a stage of disability where the patient is demanding a more serviceable leg. The leg will be stronger and less troublesome after the operation, and hence arthrodesis is the operation of choice in cases in which only one hip is involved. If an operation is required to restore motion in a joint, careful judgment must be used. In one case in which the ostearthritic affection was supposed to have subsided, it was thought that motion could be restored to the joint by a total excision of the head of the femur. If partial excision were the method chosen, it would be necessary to apply some protection against bony and capsular adhesions, and for this purpose the best material is furnished by free flaps of the deep fascia of the thigh, according to Dr. M. Sumita of Fukuoka, Japan, who in the year 1915 reported over eighty excellent results of various joints. This method will be successful if the refreshed bone surfaces are free from pathologic processes.

13. **Treatment of Myelocytic Leukemia by Radium.**—Thirty consecutive cases of myelocytic leukemia were treated at the Mayo Clinic by means of the surface application of radium element over the enlarged spleen. A certain degree of general improvement, together with reduction of the size of the spleen and of the leukocytic count, occurred in every instance, even in the most advanced and toxic cases. Marked temporary improvement occurred in twenty-six patients, and a remarkable improvement in thirteen. Hemorrhage ceased as a rule after one or two series of exposures. In two instances, hemorrhage occurred after radium exposures when it had not occurred previous to treatment. In these instances the hemorrhage seemed to be the result of overexposure; an anemia also developed; both the hemorrhage and the anemia were successfully combated by means of transfusion. In twenty-five patients there was definite improvement of the anemia concomitant with the improvement of the general condition. The reduction of the number of leukocytes was due chiefly to not only an absolute but also a striking relative fall in the myelocytes; there was a striking fall in the absolute count of polynuclears, while their relative percentage remained approximately the same. There was also a marked fall in the absolute count of small lymphocytes. Surface exposures of radium over the spleen of myelocytic leukemia usually effect a very rapid reduction of the size of the spleen, a fall of the leukocyte count, improvement in the general condition and together with transfusion, constitute at present the most effective temporary measure in the treatment of the disease.

Canadian Medical Association Journal, Toronto

November, VII, No. 11

19 Technic of Nerve Suture. S. A. Smith.—p. 974.
20 Suppurative Conditions in Lower Respiratory Tract. Medical Aspects. A. McPhedran, Toronto.—p. 992.
21 Id. Surgical Aspects. E. M. von Eberts, Montreal.—p. 1000.
22 Id. Roentgenologic Aspects. W. A. Wilkins, Montreal.—p. 1005.

Indiana State Medical Association Journal, Fort Wayne

November, X, No. 11

23 *Abdominal Wounds in War. J. R. Eastman, Indianapolis.—p. 417.
24 *Pretended Blindness and Deafness and Their Detection. G. F. Keiper, Lafayette.—p. 422.
25 Wassermann Reaction. Necessity for Clearer Understanding of Its Significance and Fallacies. B. W. Rhamy, Fort Wayne.—p. 427.

23 and 24 Abstracted in The Journal, Nov. 3, 1917, p. 1560.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

November, X, No. 5

26 *Attempts to Produce Substance with Thyroid-Like Activity by Artificial Iodization of Proteins. J. M. Rogoff and D. Marine, Cleveland.—p. 321.
27 *Influence of Ergotoxin on Body Temperature. T. S. Githens, New York.—p. 327.
28 *Pharmacologic Studies of Ipecac Alkaloids and Some Synthetic Derivatives of Cephaelin. Studies on Protozoocidal and Bactericidal Action. A. L. Walters, W. F. Baker and E. W. Koch, Indianapolis.—p. 341.
29 *Changes in Rhythmicity, Irritability and Tone in Purged Intestine. W. C. Alvarez and F. B. Taylor, San Francisco.—p. 365.
30 Comparative Activity of Local Anesthetics. Paralysis of Motor Nerve Fibers. T. Sollmann, Cleveland.—p. 379.

26. **Artificial Iodization of Proteins.**—Employing the method described by Kurajeff, Rogoff and Marine have artificially iodized whole ox serum, ox serum globulin (obtained by half saturation of the serum with ammonium sulphate), ox serum albumin (obtained by saturating the filtrate of the globulin with ammonium sulphate), Merk's egg albumin and egg white (obtained from fresh eggs). It was found that artificially iodized blood serum (ox) causes acceleration of metamorphosis when fed to tadpoles, resembling that shown by thyroid, but not so marked nor so rapid. It is possible to show by crude process of separation that the globulin fraction of the serum contains most of the substance with which the iodin combines to give the activity of tadpoles. Alkaline hydrolysis of iodized proteins apparently destroys their activity, therein differing from thyroid. This suggests that the thyroid adds something to the iodin complex in the blood to complete the stable iodin containing thyroid hormone.

27. **Influence of Ergotoxin on Body Temperature.**—The facts reported by Githens seem to show that in many species ergotoxin exerts a specific influence on the heat-regulating center, disturbing the relation between heat production and heat dissipation. In cats and in rabbits this induces a rise of body temperature; in rats, mice and pigeons it causes a fall.

28. **Protozoocidal and Bactericidal Action.**—Emetin hydrochlorid in solution of 1:1,000 when acting on water amebas for one hour, or in solution of 1:5,000 acting for three hours, destroyed many of these organisms but was not uniformly amebacidal. Emetin hydrochlorid in solution of 1:200,000 in contact with cultures of amebas for one hour, four hours, or seven hours destroyed many amebas, but transplants from these cultures to fresh agar plates showed a retarded or delayed growth of amebas, owing probably to the development of encysted or resistant forms. Emetin hydrochlorid in solutions as strong as 1:100 are not rapidly destructive to the *Endameba buccalis,* in some cases not killing it in one hour. The propyl and iso-amyl ethers of cephaelin are stronger than emetin as amebacides but their action on water amebas or the *Endameba buccalis* cannot be used satisfactorily as a comparative measure of this action. Methylating

cephaelin to form emetin is known to increase the endamebacidal action as well as the protozoocidal action toward paramecia and the substitution of the methyl group by ethyl, propyl, butyl, iso-amyl or allyl further intensifies this action. The propyl, butyl and iso-amyl ethers of cephaelin possess much stronger protozoocidal properties than the methyl ether (emetin). Cephaelin iso-amyl ether phosphate was the most effective alkaloid of this group in killing paramecia, being fifteen to twenty times as active as emetin phosphate. Tested on *Staphylococcus aureus* in the manner described, cephaelin propyl ether phosphate is germicidal in solutions of 1:222, and cephaelin iso-amyl ether phosphate in solutions of 1:4,120. Both of these derivatives are much stronger than emetin in germicidal action.

29. **Changes in Purged Intestine.**—The well purged rabbit is likely to be apathetic and to look sick. Its bowel is full of gas and fluid, and the mesenteric circulation is disturbed. Excised segments beat poorly and irregularly in Locke's solution, and they fatigue quickly. They respond poorly to drugs. Some parts of the bowel are abnormally irritable while others fail to respond at all to powerful stimuli. This unevenness in the gradient of muscular forces must interfere with the steady progress of food through the intestine; and probably favors the production of colic and gas pains. The conclusion drawn by Alvarez and Taylor is that it is not wise to purge shortly before an operation in which the bowel must stand the insults of drying, handling, cutting and sewing.

Journal of Urology, Baltimore

October, I, No. 5

31 *Control of Symptoms of Diabetes Insipidus by Subcutaneous Injections of Extracts of Hypophysis Cerebri (Pars Posterior and Pars Intermedia.) L. F. Barker and H. O. Mosenthal, Baltimore.—p. 449.
32 *Effect of Thyroid Medication on Basal Metabolism, Renal Function and Nitrogen Balance in Chronic Nephritis and in Hypothyroidism. B. D. Bowen and W. M. Boothby, Boston.—p. 469.
33 Comparative Study of Rate of Excretion of Nitrogenous Waste Products to Their Blood Concentration in Experimental Uranium Nephritis. C. K. Watanabe, New York.—p. 485.
34 New Universal Urethroscope with New Diagnostic and Therapeutic Fields of Application. L. Buerger, New York.—p. 495.

31. **Control of Diabetes Insipidus.**—Thus far, comparatively few cases treated by the injection of posterior lobe extract have been reported. The treatment of the patient, detailed by Barker and Mosenthal yielded results that did not differ appreciably from those reported by other authors who have injected posterior lobe extracts. The facts given may, therefore, be considered as confirming previous observations. The response of the kidneys to numerous injections was constant throughout. The most favorable effect was obtained when two or more injections of not less than 1 c.c. each, were given during the course of the day. This patient was made perfectly comfortable, and apparently the efficacy of the extract did not diminish over a period of four weeks' trial in the hospital nor after about one month's continuation of the therapy at home. The patient having once experienced the relief afforded by the injections refused to do without them. Tethelin and epinephrin do not seem to be of any value in the treatment of diabetes insipidus.

32. **Effect of Thyroid Medication on Basal Metabolism.**—The effects of thyroid treatment, as measured by clinical, renal function and metabolic studies, are reported by Bowen and Boothby in two cases of myxedema, complicated by symptoms of chronic nephritis, and in three cases of chronic nephritis in which there was no evidence of thyroid insufficiency. In the first group thyroid medication produced a marked improvement in the clinical and metabolic conditions together with some improvement in the renal function. In the nephritic cases, however, no improvement occurred from its use, and indeed in two cases decidedly injurious effects were produced. The authors state that although thyroid medication has been recommended as a means of satisfactorily treating cases of nephritis, is not indicated unless there is an associated condition of myxedema. The degree of thyroid insufficiency and the effect of treatment thereon can best be gaged by the determination of the basal metabolism.

Kansas Medical Society Journal, Topeka

November, XVII, No. 11

35 Mastoiditis with Intracranial Complications. E. N. Robertson, Concordia.—p. 293.
36 Cholecystectomy. H. L. Charles, Atchison.—p. 296.
37 Some Observations on Gallstones. W. J. Aldrich, Independence.—p. 298.
38 Intercostal Neuralgia. J. J. Harrington, Osawatomie.—p. 299.

Medical Record, New York

November 24, XCII, No. 21

39 Should Certain Tuberculous Patients Work? M. Fishberg, New York.—p. 881.
40 Treatment of Cancer at Anus. C. J. Drueck, Chicago.—p. 887.
41 Some Reasons Why Hospitals for Insane Are Overcrowded. W. M. Kenna, Mount Vernon.—p. 890.
42 Pellagra; Its Etiology, Symptomatology and Treatment. J. F. Yarbrough, Columbia, Ala.—p. 892.
43 Hyperthyroidism. M. F. Morris, Jr., Chelsea, Mass.—p. 895.
44 Vomiting of Pregnancy. W. J. Caesar, Richmond, Calif.—p. 897.

Nebraska State Medical Journal, Norfolk

November, II, No. 11

45 New Appreciation of Mastoid Operations. J. J. Hompes, Lincoln.—p. 477.
46 Effect of Sinus Disease on Eye. F. F. Teal, Lincoln.—p. 479.
47 Conservation of Vision and Hearing. E. C. Hayman, Lincoln.—p. 481.
48 Puerperal Sepsis. I. C. Munger, Cozad.—p. 483.
49 Deficiencies in Young. J. M. Aikin, Omaha.—p. 488.
50 Early Diagnosis of Breast Cancer. C. H. Waters, Omaha.—p. 490.
51 Ludwig's Angina. E. R. Hirsch, Superior.—p. 492.
52 Cystoscopic Findings and Pyelography. C. Emerson, Lincoln.—p. 498.
53 Artificial Feeding of Infants. C. R. Spicer, Hastings.—p. 500.
54 Use of Lactic Bacilli Milk. H. M. McClanahan, Omaha.—p. 503.
55 Dento-Alveolar Abscess with Sinus Through Cheek. A. F. Tyler, Omaha.—p. 505.
56 Resection of Colon for Epilepsy. H. W. Wightman, Omaha.—p. 505.

New York Medical Journal

November 24, CVI, No. 21

57 Tuberculosis Treated by Tuberculin. R. C. Newton, Montclair, N. J.—p. 965.
58 Diagnosis of Pulmonary Tuberculosis in Children Issued by National Association for Study and Prevention of Tuberculosis. M. Fishberg, New York.—p. 967.
59 Prophylaxis in Syphilis of Central Nervous System. I. Rosen, New York.—p. 970.
60 Study of Drug Action. T. J. Mays, Philadelphia.—p. 973.
61 Urinary Antiseptics. A. K. Detwiler, Omaha.—p. 976.
62 State Examinations and Treatment for Eye Disease in Schoolchildren. A. Rovinsky, New York.—p. 978.
63 Colored Photomicrographic Slides of Sections. E. A. Hunger, Rochester.—p. 983.

New York State Journal of Medicine

November, XVII, No. 11

64 How Can We Safeguard Child against Mental Disease? J. Tait, New York.—p. 481.
65 Psychology vs. Psychiatry in Diagnosing Feeblemindedness. W. B. Cornell, New York.—p. 485.
66 Mentality and Intelligence Tests. J. L. Herrick, Albany.—p. 486.
67 Various Phases of Feeblemindedness and Stigmata of Degeneration. Physical Types, etc. C. Bernstein, Rome.—p. 490.
68 Assistance of Roentgen Ray in Diagnosis of Pulmonary Tuberculosis. F. H. Heise and H. L. Sampson, Trudeau.—p. 499.
69 Serum Diagnosis of Tuberculosis. H. R. Miller, New York.—p. 501.
70 Bacteriology of Paratyphoid Fever. C. Krumwiede, Jr., New York.—p. 503.
71 Laboratory Service in Epidemic of Paratyphoid Fever among Troops. A. B. Wadsworth, Albany.—p. 506.
72 Cases of Fractures of Neck of Femur in Children. H. L. Taylor, New York.—p. 508.
73 Bronchoscopy and Esophagoscopy. J. W. Murphy, Cincinnati.—p. 513.

Pennsylvania Medical Journal, Athens

November, XXI, No. 2

74 Factors of Safety in Abdominal Hysterectomy. D. Guthrie, Sayre.—p. 65.
75 Surgical Treatment of Prostate. E. S. Judd, Rochester, Minn.—p. 72.
76 Principles of Pathology of Prostate. W. C. MacCarty, Rochester, Minn.—p. 76.
77 Selection of Cases for Prostatectomy. J. B. Deaver, Philadelphia.—p. 78.
78 Remote Symptoms of Prostatitis and Spermatocystitis. T. Baker, Pittsburgh.—p. 82.

79 Poliomyelitis. Study of 1916 Epidemic in Philadelphia. T. H. Weisenburg and S. S. Leopold, Philadelphia.—p. 86.
80 Id. Early Recognition; Value and Technic of Spinal Puncture. J. F. Sinclair, Philadelphia.—p. 92.
81 Alcoholism; Some Complications and Their Treatment. J. C. Doane, Philadelphia.—p. 96.
82 Treatment of Pneumonia in Early Life. H. T. Price, Pittsburgh. —p. 99.
83 Oral Sepsis. S. B. Luckie, Chester.—p. 103.
84 *Analysis of Nine Hundred and Ninety-Eight Consecutive Complete Blood Counts. F. B. Utley, Pittsburgh.—p. 106.

84. **Analysis of Blood Counts.**—In the 998 blood counts made by Utley the polymorphonuclear leukocytes were increased over the accepted normal percentage of 70 in 179 smears. This increase was found in patients suffering from infections, acute or pyogenic. They were diminished under 65 per cent. in twenty smears without an abnormal increase in any other group of cells with which they might be classed. This diminution occurred in asthenic conditions, or in those patients who are regarded to have an abnormally low resistance. Of the 998 differentials made, there were eighty-eight which had an absolute eosinophilia or over 250 eosinophils per cubic millimeter. In fifty-one, or in 57.9 per cent. of the cases, eosinophilia did not assist in the diagnosis in the light of present knowledge. There was an eosinophilia in twelve cases of intestinal putrefaction, indicating a correlation of the chemotactic action of intestinal parasites and of intestinal putrefaction. Basophils in excess of 1 per cent. were present in twenty-six cases. The presence of basophilia was not of much help in diagnosis. In general, it was present in asthenic conditions. Myelocytes were present in fifteen cases. Twelve were patients suffering from pernicious anemia, one a patient suffering from angina pectoris, and two were patients whose condition was not diagnosed. Differentials showing lymphocytes in excess of 30 per cent. were regarded as showing a lymphocytosis. Practically all the cases fall within the prescribed list except those which could not be classified. There were 166 smears in which the large mononuclears were 5 per cent. or over.

The cases of syphilis, the various cachexias, malignant endocarditis, influenza, measles and Hodgkin's disease or twenty-three cases in all out of the 166 may be regarded as being in the usual group, leaving 143 cases or 86.2 per cent. of the cases ungrouped. In other words, in 86.2 per cent. of the cases the presence of large mononuclears in excess of normal can not be explained in the light of present knowledge. The asthenic group totals sixty-four cases, or 38.5 per cent. There were twenty-nine smears which showed so-called transitionals in excess of 5 per cent.. There were 272 normal counts, and these coincided with the clinical picture in each instance, except in a few cases of pernicious anemia and influenza where the differential might have been expected to be different. Adding to the 272 normal counts which were of no definite help in diagnosis, the undiagnosed cases in each group or 104, there were 376 counts out of the 998 made which had no direct bearing on the diagnosis, prognosis and treatment of the patient. Deducting from each group the number which had no classification in that group according to the light of our present knowledge, or 210, and adding these to the 376, there were 586 counts made which offered no direct assistance in the diagnosis, prognosis and treatment of patients. Of the remaining 412 counts the way to a diagnosis was pointed out in six of seven cases of intestinal parasites and in seventeen cases of pernicious anemia, or twenty-three in all. In the remaining 389 cases the blood count was helpful in diagnosis.

Psychiatric Bulletin, Utica, N. Y.

July, II, No. 3

85 War Neuroses. J. T. MacCurdy, New York.—p. 243.
86 Treatment of Mental and Nervous Diseases in United States Army. T. W. Salmon.—p. 355.
87 Mental Disorders Incident to War. A. Hoch, New York.—p. 377.

Washington Medical Annals, D. C.

November, XVI, No. 6

88 Epidemic Cerebrospinal Meningitis; Report of Sixteen Cases. F. Leech and J. W. Lindsay, Washington, D. C.—p. 307.

Wisconsin Medical Journal, Milwaukee

November, XVI, No. 6

89 Acidosis from Physiologic Chemical Viewpoint. C. J. Farmer, Milwaukee.—p. 187.
90 Tuberculosis and Draft Examinations. O. Lotz, Milwaukee.—p. 197.
91 Classification of Chronic High Blood Pressure Cases. L. M. Warfield, Milwaukee.—p. 200.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Disease, London

July-September, XIV, Nos. 163-165

1 Hypertrophic Stenosis in Infants; Analysis of One Hundred and Fourteen Cases. L. E. Holt.—p. 161.
2 Acquired Syphilis in Infants, with Remarks on Crèches. G. Pernet.—p. 168.
3 Treatment of Enlarged Cervical Lymph-Nodes in Children. C. G. Cumston.—p. 172.
4 Cerebral Degeneration and Epileptiform Fits, with Amaurosis, in Only Child. F. P. Weber.—p. 176.
5 Case of Lipodystrophia Progressiva in Male. F. P. Weber.—p. 179.
6 Congenital Word Blindness and Letter Blindness—Congenital Alexia, with Agraphia without Aphasia. F. P. Weber.—p. 183.
7 *Case of Congenital Defect of Duodenum, in which Bile was Found Both Above and Below the Absent Portion. E. A. Cockayne.—p. 188.
8 Fatal Case of Pelvic Cellulitis in Child. F. C. Pybus.—p. 192.
9 Acute Delirium in Lobar Pneumonia in Child. J. P. Parkinson. —p. 193.

7. **Congenital Defect of Duodenum.**—Cockayne's case occurred in a male child born at full term. There was no history of any similar condition in the family and the mother was in good health during her pregnancy. At the confinement it was noticed by the medical attendant that the liquor amnii was excessive in quantity and bright green in color. The child vomited liquid, which resembled the bile-stained liquor amnii, on the second day, and passed meconium of normal appearance. Slight jaundice was noticed on the third day. Vomiting continued at intervals, the vomit being invariably watery and green, but no more meconium was passed. The general condition became gradually worse until death took place on the fifth day. At the necropsy it was seen that the child was well nourished and without any external malformation. The skin was slightly icteric. On opening the abdomen the stomach was found to be greatly dilated and the first part of the duodenum to end blindly, being greatly distended and globular in outline. The pylorus was visible and palpable as a thickened constriction between these two organs. Some fluid stained with the bile was present in the stomach and distended first part of the duodenum. The bile-duct opened directly into the narrow commencement of the lower part of the duodenum, but the pancreatic duct entered the posterior aspect of the blind sac formed by the upper part of the duodenum. There was no connection except by peritoneum between the upper and lower portions of the duodenum; the missing part of the viscus was not even represented by a thin cord. The liver, gallbladder, cystic duct, hepatic duct, and common bile-duct were normal, and the gallbladder contained a considerable amount of bile. The most interesting feature of the case and one which made a correct diagnosis almost impossible, was the fact that a large quantity of bile-stained fluid was vomited, although the bile-duct opened into the lower part of the duodenum, and there was complete lack of continuity between it and the upper part.

Edinburgh Medical Journal

November, XIX, No. 5

10 *Lathyrism. R. Stockman.—p. 277.
11 *Lathyrism in Man. R. Stockman.—p. 297.
12 Case of Syringomyelia. D. M. Greig.—p. 308.

10. **Lathyrism.**—The results of many experiments on such animals, as the monkey, rabbit, pigeon, duck, pig and sheep made by Stockman showed that both the large peas (grown on dry wheat lands) and the small peas (grown on wet rice lands) of *Lathyrus sativae* are poisonous, but different samples

of peas vary greatly in toxicity. The poisonous substance is an alkaloid. Certain species of animals are very much more susceptible than others. Individual susceptibility varies greatly in the same species. With ordinary samples of the peas and in susceptible animals feeding has to be carried on for some time before toxic symptoms develop. Occasionally, however, the peas seem to be more poisonous and capable of causing more acute poisoning. In monkeys and in other susceptible lower animals prolonged feeding seems to cause a greater or lesser degree of paralysis of the peripheral nerves, along with other symptoms due apparently to an action on the central nervous system. A single large dose of the alkaloid paralyses the terminations of motor nerves, but other parts of the nervous system are also affected. Histologic examination of the muscle and nervous system in poisoned monkeys showed no structural changes.

11. **Lathyrism in Man.**—Lathyrism in man is a chronic nervous disease due to the habitual use as food of the peas of certain species of *Lathyrus* (vetchlings); it occurs endemically and epidemically. The symptoms appear only after the peas have been eaten for some time, the length of time varying according to the quantity consumed and the amount of poisonous alkaloid present. Individual susceptibility also appears to have a considerable influence as only certain persons in communities and families suffer, even when all are apparently equally exposed. A striking feature in every epidemic has been the large number of men affected as compared with women, generally estimated as ten or twelve to one. Two explanations of this have been given, the one, that men habitually eat more than women, the other, that men are more exposed to cold and wet and fatigue, conditions which seem to accentuate the action of the poison.

The patient first complains of cramps in the calves of his legs, and if he then stops eating the grain he may recover almost entirely, or only a little stiffness of his legs may remain. He is able to walk about without the aid of a stick, but an up-and-down movement of his shoulders may be noticed when he is walking. His toes may drag slightly on the ground. If he continues eating peas he may experience a somewhat sudden onset of paralysis. If he still eats peas he will lose control over the bladder and rectal sphincters. A very small number of patients are unable to stand even with the aid of sticks. The knee jerk is increased in all cases, sometimes more on one side than on the other, and the foot clonus is increased only in the severe cases. The muscles in the back of the leg are rigid. The muscles were found, as a rule, to be well nourished. Bed-sores were never seen. The paralysis of the sphincters passes off in a few weeks; sexual power is diminished or lost, but it may return. Sensory symptoms precede the paralysis, chiefly cramps, a feeling of tightness in the leg tendons, tingling, pins and needles and weakness at the waist. The gait is characteristic.

In the mild case the patient has to raise his body high before the toes will leave the ground, and the up-and-down movement of the shoulders is the chief symptom noticed. In the more severe cases the patients use one or two sticks, and these sticks are always long. One stick is put forward and then the upper part of the body sways forward; the body becomes erect before the other stick is put forward. The dragging of the toes is the most marked symptom. The inner side of the nail of the great toe is worn away, and in bad cases the upper surface of the outer toes may be rubbed. There is nearly always a tendency to cross legged progression. No satisfactory examination of the spinal cord and peripheral nerves has ever been made. Treatment is generally said to be futile if the disease is fully developed.

Indian Journal of Medical Research, Calcutta

July, V, No. 1

13 Preparation of Vaccines on Large Scale. J. Cunningham, H. C. Brown and K. R. K. Iyengar.—p. 1.
14 Susceptibility of Indian Milch Cattle to Tuberculosis. W. G. Liston and M. B. Soparkar.—p. 19.
15 Wassermann Reaction as Explained by Major Nesfield. W. D. Sutherland.—p. 72.
16 Bacteriologic Studies of Cholera-Like Vibrios Isolated from Stools of Cholera Cases in Calcutta. Morphologic and Cultural Investigations. E. D. W. Greig.—p. 81.
17 Id. Feeding Experiments. E. D. W. Greig.—p. 89.
18 Dysentery in Jails of Eastern Bengal. J. Cunningham and H. H. King.—p. 96.
19 *Transmission of Plague by Bedbugs. J. W. Cornwall and T. K. Menon.—p. 137.
20 Studies in Flies. Classification of Genus Musca and Description of Indian Species. P. R. Awati.—p. 160.
21 Trematode Parasite of Anopheline Mosquitos. J. A. Sinton.—p. 192.
22 Anopheline Mosquitoes of Kohat District. J. A. Sinton.—p. 195.
23 Ankylostoma Duodenale as Parasite of Felis Tigris. C. Lane.—p. 210.
24 *Trichomastix (n. sp.) Parasitic in Human Intestine. G. C. Chatterjee.—p. 217.
25 Tricophyton Viannai n. sp. Infecting Agent in Case of Dermatomycosis. F. de Mello.—p. 222.
26 Effect of Intravenous Injections of Antimonium Tartaratum on Malarial Parasites. E. D. W. Greig.—p. 234.
27 Amebic Dysentery Carrier in India and Mesopotamia. W. MacAdam and R. Keelan.—p. 239.

19. **Transmission of Plague by Bedbugs.**—Cornwall and Menon point out that bugs which have fed on a case of septicemia plague must unquestionably be regarded as ambulant cultures of plague whose rupture will set free virulent plague bacilli. A large proportion of the bugs infected with a given strain of *B. pestis* succumbed in a few days, the time of survival having some relation to the dose of bacilli. If bugs died the final results were indistinguishable whether the initial dose were large or small. The majority of the survivors had entirely overcome their infection and contained no viable bacilli. Some common nonpathogenic bacteria are as fatal to bugs as the most pathogenic. Bugs with a bacterial infection generally refuse to feed for a long time. A sterile refeed, if the infection has not been entirely overcome, may lead to a fatal recrudescence. *B. pestis* can survive in the stomach of a bug, which has had one or more sterile feeds after the original infected feed, for at least thirty-eight days. *B. pestis,* recovered by culture from the stomach of an infected bug, retains its virulence for guinea-pigs. Peculiar protozoon-like involution or developmental forms of *B. pestis* may be seen in preparations from the stomachs of infected bugs. All attempts to obtain a growth of *B. pestis* by allowing infected bugs to feed on a sterile fluid through a rabbit skin membrane failed. All attempts to transmit plague to guinea-pigs by means of the bites of infected bugs failed. *B. pestis* sometimes finds its way from the stomach of a bug into the hemic cavity and thus produces a true septicemia. Infected bugs may die from toxemia before the occurrence of septicemia. *B. pestis* may be recovered by cultivation of the proboscis of a bug in broth within an hour of its infected feed. The presumption is that bacilli which have been stranded in the sucking tube multiply in the culture medium. Pressure on the body of a fed bug will not force the contents of its stomach out along its sucking tube. After an infected feed the proportion of bugs which can be expected to feed within a few hours on a normal animal and at the same time to have bacilli stranded in their sucking tubes is not likely to exceed 2 per cent.

24. **Parasite in Human Intestine.**—A flagellate was found by Chatterjee in the stool of a dysentery patient. No amebas were found in the stool. The patient suffered from intestinal complaints for a week and obtained relief by administration of castor oil emulsion. A cover-glass preparation made from the stool showed under the high power a large number of actively moving flagellates. Their appearance differed from the flagellates which are ordinarily found here, namely *Lamblia, Pentatrichomonas* or *Macrostoma.* Some of the flagellates were circular in shape. The flagellate resembles a *Trichomonas* but absence of an undulating membrane, a well marked axostyle and a tail prove that it is not a *Trichomonas.* It has some resemblance to *Copromastix prowazeki* of Aragao which has four flagella, but in the latter all the flagella are directed forward, whereas in the parasite under consideration one flagellum is directed backward. It has the structure of *Trichomastix* as defined by Parisi (three anterior flagella and one recurrent flagellum not adherent to the body to form an undulating membrane). As a *Trichomastix* inhabiting the human intestine has not hitherto been described, Chatterjee feels justified in describing it as a new species *Trichomastix hominis.*

Lancet, London

November 10, II, No. 4915

28 Causes of Disease. E. S. Reynolds.—p. 703.
29 *Later History of Cases of Gunshot Wounds of Chest, with Retained Missiles. R. D. Rudolf.—p. 709.
30 *Abnormal Median and Ulnar Nerve Supply in Hand. W. Harris.—p. 710.
31 *Cerebrospinal Fever; Mode of Invasion by Meningococcus. C. Worster-Drought and A. M. Kennedy.—p. 711.
32 *Action of Spinal Fluid in Stimulating Growth of Meningococcus. C. Shearer.—p. 714.
33 Removal of Shrapnel from Subclavian Artery. H. C. Donald.—p. 715.
34 Case of Complete Obliteration of Ulnar Artery by Suppuration. J. M. Barlet.—p. 715.
35 Digestibility of Bread Made from Two Parts of Wheat and One Part of Oats, Barley, Maize or Rice. E. I. Spriggs and A. B. Weir.—p. 724.

29. **Gunshot Wounds of Chest.**—An analysis made by Rudolf of fifty cases shows that evidence is lacking that small fragments of shell and shrapnel and likewise rifle bullets and shrapnel balls retained in the lung commonly give rise to any serious trouble. The mortality of gunshot wounds of the chest in patients that have survived the early days of their invalidism and been sent to England with retained missiles in the chest is practically nil if these foreign bodies be left alone. Hence, when it has not been considered necessary by the surgeons at the front to operate immediately, it should not be done later on, unless, indeed, some very definite indication, such as an abscess, exists.

30. **Abnormal Nerve Supply in Hand.**—Harris has seen four cases of abnormal nerve supply to the hand, two of the sensory distribution and two motor. In two cases the first and second dorsal interossei were quite unaffected in severe ulnar nerve lesions from gunshot wounds, indicating their supply to be from the median nerve in these cases, while the other two cases illustrated an abnormally large sensory supply by the ulnar to the inner two and a half fingers instead of the usual one and a half.

31. **Cerebrospinal Fever.**—Observation of a number of cases has convinced Worster-Drought and Kennedy that the mode of entry of the meningococcus is via the blood stream. In the ordinary type of case the coccus is carried to the meninges by the blood within a few hours without definitely infecting the blood itself. In some cases, however, blood infection (septicemia) occurs, for instance, in fulminating cases prior to the involvement of the meninges; the septicemia then frequently overshadows the meningitis. In rare cases the organism may remain, infecting the blood alone for a considerable time, before finally reaching the meninges, or the patient may die of such septicemia before meningitis can occur. In other instances the meningococcus infecting the blood may also invade structures other than the meninges, for instance, the cardiac valves. Catarrhal conditions predispose to meningococcal infection, but the meningococcus does not necessarily produce nasopharyngeal catarrh.

32. **Action of Spinal Fluid on Meningococcus.**—The main outcome of Shearer's experiments is to show that there is present in normal spinal fluid some substance that greatly increases the rate of growth of the meningococcus on an artificial culture medium. They demonstrate that this power, in the case of human spinal fluid is relatively greater than that shown by blood or nasal secretion; that volume for volume, spinal fluid brings about a much thicker growth of the meningococcus than do the same volumes of blood or nasal secretion.

Annales de Médecine, Paris

July-August, IV, No. 4, pp. 377-472

36 *Disordered Action of the Heart and Military Service. H. Vaquez and E. Donzelot.—p. 377.
37 Paratyphoid Fevers. G. Etienne.—p. 391.
38 Tumor of the Cerebellopontine Angle with Paroxysmal Syncopal Bradycardia. J. A. Sicard and H. Roger.—p. 418.
39 *Remote Sequels of Pleural Effusions. M. Pébu and M. Daguet.—p. 428.
40 *The Proteolytic Power of Normal Polynuclear Leukocytes. N. Fiessinger and R. Clogne.—p. 445.
41 Hemiplegia from Concussion of the Spinal Cord. G. Roussy and J. Lhermitte.—p. 458.

36. **Testing the Heart.**—Vaquez and Donzelot refer to tests for military service, emphasizing that the usual tests do not take into account all of the four main factors in the acceleration of the pulse after a test running or stair-climbing exercise. The irritation of the accelerating nervous system, the reduction in the peripheral resistance, the hampering of the diastole and hence the incomplete filling of the ventricles, cooperate with the hampering of the systole to modify the pulse, but only the difficulty with the systole is directly connected with the force exerted by the myocardium itself. In their examination of hundreds of men in the last few months they were impressed by the extreme variety of the tracings in different persons and at different times in the same person. Also with the frequent contradiction between the tracings which seemed to give most favorable testimony and the unmistakable grave clinical symptoms in certain cases. It seemed impossible to determine any definite relations between the different types of tracings and curves and the functional capacity of the heart. They discuss each type of curve in turn, their conclusions being that the only way to estimate the reserve force of the heart and hence its functional value is to make a careful clinical examination in each case, completed by sphygmomanometry and radioscopy. The men with well compensated mitral or aortic incompetency can be passed for merely the auxiliary service (light duty); as also those with pericarditis with merely localized adhesions. All other forms of cardiac or aortic lesions justify exemption. With functional cardio-pulmonary trouble, the right heart intact, light duty only. In regard to arrhythmia, they state that breathing arrhythmia is not pathologic. With extrasystolic arrhythmia, young men should be passed for full military service with progressive exercise, but older men should be passed only for the auxiliary service or should be exempted, according to the size of the heart. With paroxysmal tachycardia without valvular lesion, the men should be given a rest in a hospital at the front with convalescence leave. With tachycardia in general, the man should be kept in bed for three or four days and then reexamined from time to time. If the tachycardia subsides under repose, progressive exercises are then in order.

39. **Sequels of Pleural Effusions.**—From clinical and radioscopic study of 152 cases of traumatic and spontaneous disease of the pleura, Péhu and Daguet state that months and years afterward there was extensive adhesion of the sheets of the pleura, over extensive areas, only in the cases of pleurisy of tuberculous origin. In all the other cases the adhesions were slight or transient as a rule, including the cases with simple hemothorax after a war wound. Extensive hemothorax persisting after several punctures is liable to produce symphysis between the sheets of the pleura, the same as hemothorax of the dura, as it undergoes organization. Radioscopy reveals the extent of the symphysis and its influence on respiration.

40. **Proteolytic Power of the Leukocytes.**—The proteolytic power of the leukocytes in pus has been well studied, but Fiessinger and Clogne here report what they think is the first extensive research of the kind on the normal polynuclear leukocytes in the blood stream. They found that these leukocytes secrete a protease that has the same action as the protease of the pus leukocytes, an action resembling that of trypsin. The findings are tabulated in detail. They isolated the leukocytes for the purpose by hemolyzing with diluted alcohol and centrifuging.

Archives Médicales Belges, Paris

May, LXX, No. 5, pp. 385-480

42 *Rigidity of Abdominal Wall with War Wounds. C. Willems.—p. 385.
43 *Mental Derangement in Soldiers. H. Hoven.—p. 395.
44 *Local Medication in Treatment of Diphtheria Bacilli Carriers. J. Roskam.—p. 406.
45 Direct Shell Shock of the Nearest Eye. G. Leplat.—p. 412.
46 Present Status of Treatment of Fractures. Stassen and J. Voncken.—p. 416.

42. **Rigidity of the Abdominal Wall with War Wounds.**—Willems expatiates on the importance of determining the presence and degree of rigidity of the abdominal wall in

case of wounds anywhere on the trunk. Even with wounds on the limbs near the trunk, we may overlook important information if we neglect to determine the condition of the abdominal walls. The rigidity may be partial, localized, or there may not be absolute rigidity. With much hemorrhage in the abdomen, the rigidity is general and pronounced; with hemorrhage in the thorax there is also a certain amount of rigidity even when the diaphragm is intact, as also with retroperitoneal lumbar hemorrhage with or without injury of the kidney. The peritoneum is not inflamed, but it is pushed out of its normal place by the accumulation of blood forcing down the diaphragm or in the lumbar region, hence the muscle over it contracts but not so taut as with peritonitis.

When the peritonitis reaches the stage of sepsis, the abdominal wall relaxes. This is liable to be misleading when the patient with a lesion of some hollow viscus is not seen until the rigidity at first has subsided into the stage of relaxation. In some persons the wall is less board-like than in others, and the rigidity is much less pronounced with simple hemorrhage than with perforation of one of the viscera. Small intraperitoneal hemorrhages do not induce rigidity until considerable blood has accumulated, and then only the muscle wall in this region contracts. With a war wound in the liver, there is no rigidity as the blood flows a little at a time. It settles in the right flank; and when enough has accumulated there is rigidity, but only in the right flank. The wound in the liver may be small and heal spontaneously, but the "wooden abdomen" always calls for a laparotomy. With a rapidly developing hemothorax, that side of the abdominal wall stiffens, especially the upper part, and the assumption that the projectile has entered the abdomen seems justified. But by waiting a little, keeping the man quiet, we find the rigidity less pronounced by the next day and all gone in a few days. This unilateral rigidity of the abdomen has led to many unnecessary and futile laparotomies. With a wound of the kidney, the rigidity is likewise unilateral, and some part of the wall on the other side can always be found normal. If the hematuria is not menacing, repose may be all that is needed; otherwise the kidney should be removed from the rear. The abdomen should not be opened for unilateral rigidity. The kidney often is wounded with the peritoneum still intact. With wounds in the pelvis region alone, the rigidity is localized in the vicinity and subsides in a few hours. The partial, localized rigidity only renders more significant the necessity for a prompt laparotomy when the whole abdominal wall is rigid. As Willems expresses it, *grande défense* calls for intervention, and *petite défense* for abstention.

43. **War Psychoses.**—Hoven's conclusion from 300 cases are that the psychoses encountered in the men at the front are the same old types known during the days of peace.

44. **Local Treatment of Diphtheria Bacilli Carriers.**—Roskam reports that local treatment of the throat with iodin and other antiseptics did not clear the throat of bacilli by any means as effectually as when they were treated by insufflation of pulverized antitoxin. With the latter the carrier period was shortened by 33 per cent. in the convalescents from diphtheria and by 59 per cent. in the healthy carriers. The antiseptic group included 53 convalescents and 28 healthy carriers; the antiserum powder group 49 convalescents and 65 healthy carriers. In this last group all but 4 of the convalescents lost their bacilli on an average before the twenty-second day; all but two of the carriers before the nineteenth day.

Journal de Médecine de Bordeaux

October, LXXXVIII, No. 11, pp. 219-236

47 *Reeducation of Disabled Soldiers. Le Dantec.—p. 219.
48 *Pneumonia in Prison Camp. H. Mallié.—p. 224.
49 Syphilophobia after Infection as a Danger for Society. W. Dubreuilh.—p. 228.
50 The Oscillometer as Guide in Venesection. A. Guérin.—p. 230.

47. **Autoreeducation of Disabled Soldiers.**—Le Dantec has noticed that the men overcome their disability with exceptional ease when the training combines simultaneously both active and passive movements. For example, with total hysteric paralysis of the arm, he takes up one finger, stretches it at the word "One" and flexes it at "Two," repeating this five or six times, the patient exerting his will at the same time to the utmost to extend or flex the finger at the word of command. He does the exercise first on the sound hand, the volitional and the passive movement exactly synchronous, until he gradually reduces the passive force to zero. In the same way, on the disabled hand, after five or six repetitions, there can generally be seen a suggestion of volitional movement in the finger. Each finger and finally the hand and the arm are thus exercised separately. The thumb and big toe usually regain spontaneous movement first with this "conjugated bipolar training," as he calls it. Neither the will alone nor the passive movement alone can accomplish this rearousing of function, but the cumulative action of the two combined is proving very successful in his service. He first softens the tissues by soaking in tepid water and massages with greased or soaped hands. Progress is hastened when the man is taught to do the passive movements himself with the sound hand. This gives a zest to the exercises as volitional control is regained, and the man keeps himself busy repeating these auto-exercises. In his service the men sit at a long, covered table and rest the bare arm on it. They stand when the shoulder is being exercised, and sit with bare legs when the paralysis to be combated is in the leg. As soon as spontaneous movements are possible, the men can be allowed to go home, continuing their exercises at home, returning every three weeks to report progress.

48. **Pneumonia in Prison Camp.**—Mallié relates that in the Alten-Grabow prison camp (Prussia) in the course of eleven months there were 244 cases of frank pneumonia with ten deaths among 1,200 French and Belgian prisoners of war, and 116 cases with eleven deaths among an equal number of Russian prisoners. In describing these experiences with pneumonia in the debilitated war prisoners, he emphasizes that pneumonia damages the pleura much more than is generally recognized, thus predisposing it to invasion by the tubercle bacillus. Courses of tonics and respiratory exercises should always follow pneumonia.

Paris Médical

October 20, VII, No. 42, pp. 305-336

51 *Ambard's Urea Constant in Surgery. F. Legueu and H. Chabanier.—p. 305.
52 *Deceptive Decrease in Uremia. J. Castaigne.—p. 308.
53 Glycosuria in the Wounded. F. Rathery.—p. 312.
54 Nongonorrheal Urethritis plus Epididymitis. L. Ramond.—p. 317.
55 Sphincter Disturbance in Connection with Injury of Lumbar-Sacral Region. F. Cathelin.—p. 319.
56 Surgical Importance of Ureter Anomalies. E. Papin.—p. 323.
57 War Nephritis and Albuminuria. Boulangier.—p. 327.
58 Essential Incontinence of Urine. Uteau, Schwab and J. Raton.—p. 328.
59 Secondary Aseptic Hematuria. E. Roucayrol and L. Bovier.—p. 332.

51. **The Urea Constant in Surgery.**—Legueu and Chabanier reiterate that the unfavorable outcome of many an operative intervention might have been foreseen if more attention had been paid to the functional capacity of the kidneys before attempting it. Aside from acute postoperative nephritis—which we have no means of foreseeing—we are able to determine the urea-secretory constant and maximal concentration, and thus obtain insight into conditions that warn of impending postoperative uremia. The danger from this, they explain, depends on the postoperative oliguria. Where the oliguria is not intense and does not keep up long, the uremia does not reach a menacing degree. Ambard's constant is a reliable index, they say, of the functional value of the kidneys from the surgeon's standpoint. It reveals the reserve functional power of these organs, and the surgeon is thus able to compare it with the task he is about to inflict on them, weighing along with it the general condition and degree of infection. It may warn to postpone the intervention until the patient is better able to stand it, or to operate under regional rather than general anesthesia.

52. **Deceptive Subsidence of Uremia.**—Castaigne calls attention to the misleading findings in chronic nephritis with a tendency to uremia when hydremia develops. The blood find-

ings suggest that the urea content of the blood is approaching normal once more, but this is deceptive. The change is due to more water in the blood diluting the urea, while the absolute amount in the circulating blood is the same or higher. In one of several cases reported, the hydremia was the result of a long course of mineral waters. In another, the hydremia followed return to salt in the food after restrictions on account of retention of nitrogen and sodium chlorid. The man of 34 died in coma in three months. The urea content of the blood was only 0.5 gm., but the reds numbered only 2,600,000, testifying to the hydremia which masked the uremia.

Pressè Mêdicale, Paris

October 8, XXV, No. 56, pp. 577-588

60 *Bone Growth From Bone Flap in Skull. J. A. Sicard, C. Dambrin and H. Roger.—p. 577.
61 Syndrome from Tumor in Third Ventricle. A. Salmon (Florence).—p. 578.
62 Auscultation of the Pulse. J. Cottet.—p. 579.
63 Bone Fistulas after War Wounds. Haller.—p. 581.
64 Adjustable Clamp for Fractured Bone. A. Chalier.—p. 585.

October 11, No. 57, pp. 589-596

65 The Bread Question. R. Legendre.—p. 589.
66 *The Laws on Industrial Accidents and War Wounds. L. Imbert.—p. 591.
67 Technic for Operations on the Calf. H. de Gaulejac.—p. 595.

60. **Bone Flap for Skull Defect.**—Sicard and his co-workers report forty-two cases in which they implanted a plate of bone from a skull to close a gap in the skull. The inner surface of the sheet of bone is scraped down to the diploic tissue and is fenestrated. It is then fitted over the gap like a watch glass, between the periosteum and the bone all around the gap. In three cases the plate had to be removed, and it was found that it had stimulated bone production until the gap was well on the way to being permanently closed by a new formation of bone. The findings show that the new growth is the work of the periosteum taking up from the dead bone the material it needs. This exaggerated osteogenetic power conferred on the periosteum testifies to the superiority of a bone flap over metal or other material for the purpose, to say nothing of the perfect tolerance and inexpensiveness of this technic.

66. **Pensions for Effects of Industrial Accidents and War Wounds.**—Imbert discusses the perplexing questions liable to arise when an industrial accident affects a man already damaged by a war wound, or vice versa.

Revue de Mêdecine, Paris

XXXV, No. 5-6, pp. 281-406

68 *Fat in Chest Wall as Sign of Disease Below. L. Landouzy.—p. 285.
69 *Rôle of the Pancreas in Glycolysis. R. Lépine.—p. 289.
70 Traumatic Neuroses after War Wounds. J. Ferrand.—p. 293. Commenced in No. 4, p. 239.
71 Diagnosis of Sciatica. L. Lortat-Jacob.—p. 314.
72 Delirium of Revindication and Hysteria. R. Benon.—p. 331.
73 The Skin Diseases of War. H. Gougerot.—p. 342. To be continued.

68. **The Adipose Tissue in the Chest as Aid in Diagnosis.**—In this last article from Landouzy's pen, he calls attention to the extra fat in the chest wall liable to be encountered over an old or active pleural or pulmonary lesion. He takes up a fold in the skin as if to apply a seton. The thickness of this fold compared with a symmetrical fold may prove instructive, as the adipose tissue is thicker over the diseased portion. The innervation of the adipose tissue here does not function normally, and the fat does not get oxidized properly. Not being normally oxidized, the fat accumulates. In the cases cited the fold was 13, 18 or 19 mm. thick over the apical lesion in the pectoral region while it measured only 10 mm. on the sound side. In a man of 46, four years after an attack of pleurisy, the chest seemed symmetrical but the calipers showed the fold to be 22 mm. thick over the site of the old pleurisy and only 16 mm. on the other side. In a young man ten weeks after the onset of pleurisy, the overlying fold measured 19 mm. to 10 mm. on the other side.

69. **Pancreatic Diabetes.**—Lépine protests against incriminating the pancreas alone in glycolysis. Certain others of the glands with an internal secretion are unmistakably involved likewise in the glycolysis process.

Correspondenz-Blatt für Schweizer Aerzte, Basel

October 20, XLVII, No. 42, pp. 1393-1424

74 *Indirect Trauma as a Factor in Aneurysms of the Basal Arteries of the Brain. E. Hedinger.—p. 1393.
75 *Errors in Deductions from Presence of Lactic Acid in the Stomach. A. Rodella.—p. 1398.
76 *Concussion and Shell Shock Psychoses. L. Binswanger.—p. 1401.

74. **Trauma and Aneurysms of Basal Arteries.**—Hedinger reports a case similar to that published by Saathoff in which indirect trauma induced rupture and aneurysm in the basal artery of the brain without a trace of inflammatory processes in the vessel wall. His patient was a woman of 47 who had fallen down a flight of steps four years before and had since complained of pains in the back of the neck and head in addition to her preexisting tendency to migraine. She died suddenly and necropsy revealed aneurysm of the vertebral artery with no signs of inflammation. The vertebral and basilar arteries seem to be unusually predisposed to aneurysms. In Hedinger's experience, the Wassermann reaction was always positive in the cases that came to necropsy, the ages between 25 and 40. There is much to sustain the assumption that even slight trauma, such as the forcible stretching of the spine, might damage slightly the posteriór cerebral arteries and thus afford a favorable field for colonization by the pale spirochetes.

75. **Lactic Acid in the Stomach.**—Rodella states that the Uffelmann reaction is not specific for lactic acid, but is a group reaction for the group containing citric acid, tartaric, oxalic and succinic acid besides lactic acid. Lactic acid may be found in the stomach content without lactic acid bacilli, and vice versa. He relates further that native albumin, blood or serum, is an indispensable condition for abundant lactic acid fermentation. If there is ulceration or blood in the stomach, there will be profuse production of lactic acid even when the stomach is being emptied normally, provided there is little or no hydrochloric acid present. Time must be given for the fermentation; the findings in less than three quarters or a full hour are misleading. Microscopic discovery of lactic acid bacilli is much more reliable than determination of lactic acid alone.

76. **Concussion Psychoses.**—Binswanger analyzes some of the cases of shell shock psychoses in disabled soldiers interned in Switzerland. In the small group studied all the men had had wounds of the frontal lobe. Some required two operations, and they developed psychoses of a different type after each.

Riforma Medica, Naples

October 20, XXXIII, No. 42, pp. 993-1012

77 *Pathogenesis of Paralysis or Contracture after War Wounds. A. Salmon.—p. 993.
78 Introduction of Antimony into Treatment of Internal Leishmaniosis. R. Jemma.—p. 1007.

77. **Pathogenesis of Paralysis and Contracture.**—Salmon reviews the recent publications of neurologists in this field, and insists on the importance of prolonged immobilization in perpetuating the tendency to paralysis and contracture. He does not admit, however, that this alone is responsible for them. It cannot explain the special vasomotor instability nor the lively reactions on the part of the nerve centers. This vasomotor instability in the region of traumatic neuroses of the hysteria type is too often overlooked. Among the examples cited is the case of a soldier who has had hysteric tremor in the right leg since a war wound. The tremor comes on every time the leg is examined and it becomes actual clonus at the slightest bending of the foot. Along with this there is pronounced dermographism and the skin grows as red as in measles, all coming on and subsiding with the tremor in the leg. The direct connection between the vasomotor phenomena and the hysteric is thus plainly evident. There are many cases on record of simulation of paresis or contracture in which hysteria intervened and rendered it permanent. As he remarks, "the hysteric simulate with the complicity of their organism, and they are left victims of their intent to deceive." Psychotherapy alone is ineffectual

unless supplemented by massage, passive and active exercises, etc. The great obstacle to recovery is the apathy or direct disinclination for recovery. Moral suasion may rouse the men to help themselves get well, threat of punishment, or loss of pension if the physician's efforts are not seconded. With such psychic and physical revulsion excellent results may be obtained. The main point is to begin treatment early and vigorously and not allow immobilization to be kept up too long.

Cronica Medica, Lima

September, XXXIV, No. 651, pp. 311-354

79 *Trypanosoma Duttoni in Lima Mice. R. E. Ribeyro and J. L. Raffo.—p. 313.
80 *Hyperchlorhydria of Biliary Origin. A. Robles.—p. 316.
81 Case of Blue Disease. E. Odriozola.—p. 320.
82 Protozoa in Human Pathology. J. Arce.—p. 324.
83 Present Status of Leishmaniosis. E. Escomel.—p. 334. To be continued.

79. **Trypanosomes at Lima.**—Ribeyro and Raffo report that they found the *Trypanosoma duttoni* in three mice out of a hundred examined. The infected mice came from different houses.

80. **Hyperchlorhydria from Biliary Trouble.**—Robles agrees with Pauchet's recent statement that, on an average, of every ten persons with gastric disturbance, in nine the dyspepsia is of reflex origin, the actual source of the trouble being located outside of the stomach. He reports some typical cases in which everything seemed to indicate stenosis of the pylorus or cancer of the stomach until the whole set of symptoms subsided under medical or surgical treatment of a liver abscess or gallstones, or sluggish liver functioning. In one case nothing could be found at first to explain the gastric pains and other symptoms of hyperchlorhydria from which the woman had suffered for four years. Finally palpation was done as she stood erect. This revealed a tender point in the biliary apparatus which could not be palpated when she reclined. Under treatment to stimulate the production and flow of bile, complete recovery soon followed. Unless bile is being normally secreted and passed along, the pancreatic juice does not get the stimulus which insures its passing into the stomach after a meal. This leaves the gastric secretion in its full strength, not neutralized as normally by the strongly alkaline pancreatic juice. The normal interplay between these three secretions is thus interrupted, and the hydrochloric acid in the stomach exerts an abnormal corroding action. This explanation fits a certain proportion of cases of hyperchlorhydria, and the biliary apparatus should be definitely excluded before incriminating other factors.

Prensa Medica Argentina, Buenos Aires

September 20, IV, No. 11, pp. 133-144

84 Bothriocephalus Found in Jaguar and Wildcat. S. E. Parodi and V. Widakowich.—p. 139.
85 *Tuberculous Process in Submaxillary Gland. J. C. Landaburu.—p. 140.
86 Action of Curare on the Myocardium of Different Species of Frogs. J. Guglielmetti.—p. 141.

September 30, No. 12, pp. 145-160

87 *Normal Beef Serum in Treatment of Anthrax in Man. J. Penna, J. B. Cuenca and R. Kraus.—p. 147. Continuation.
88 *Action of Animal Charcoal on Extracts of Organs. B. A. Houssay.—p. 151.

85. **Tuberculous Process in Submaxillary Gland.**—Landaburu knows of only two cases on record of what he calls bacillary submaxillaritis, but two have been encountered in Vigas' service among 22,000 patients. He gives the microscopic findings in a case in a girl of 14. No tubercle bacilli were found in the giant cells of the tumor after its removal, but the findings otherwise were typical.

87. **Normal Beef Serum in Treatment of Anthrax.**—In this third communication on this subject, Kraus and his co-workers give illustrated descriptions of some of the seventy-eight cases of their latest series of cases of anthrax subsiding under the subcutaneous injection of from 10 to 50 c.c. of normal beef serum.

88. **Adsorption by Animal Charcoal of Active Principles of Organ Extracts.**—Houssay relates that the active principles of pituitary extracts, epinephrin, etc., are adsorbed by animal charcoal and *cannot* be recovered from it with cold or hot water or glycerin. Scorpion and snake venom are adsorbed in the same way, and talcum, kaolin, etc., display similar absorbing properties.

Revista de la Asociacion Medica, Argentina

September, XXVII, No. 154, pp. 225-406

89 *Graft of Epiphysis of the Humerus. G. B. Arana.—p. 225.
90 *Injections of Boiling Water into the Thyroid. A. Ceballos and G. Bacigalupo.—p. 236.
91 *Perforation of the Uterus. C. R. Cirio and D. Leiva.—p. 249.
92 History of Public Hygiene in Argentina. E. R. Coni.—p. 268. Continuation.
93 The Mineral Springs of Argentina. E. H. Ducloux and P. Belou.—p. 331.
94 *Synovial Cysts. R. Finochietto.—p. 364.
95 *Normal Beef Serum in Treatment of Anthrax. J. Lignières.—p. 370.
96 *American Leishmaniosis. H. Quintana and J. B. Etcheverry.—p. 382.

89. **Grafted Epiphysis of the Humerus.**—Arana's patient was a young man who had fractured the surgical neck of the humerus in a fall from a horse. The extremity of the humerus was taken out and wrapped in gauze during the surgical clearing out of the region. The epiphysis was then restored to place, the lower stump fitting into the lower end of the ingrafted epiphysis. The bed for the lower stump was hollowed out as the epiphysis lay on the table. It was then fitted on the exposed and projecting shaft, and the whole was reduced and the capsule sutured. Roentgenograms taken at intervals since show production of new tissue in a most satisfactory manner. The young man has the practically free use of his arm; only abduction is limited, and this is constantly growing better.

90. **Boiling Water Injections in Local Treatment of Exophthalmic Goiter.**—Six cases of exophthalmic goiter are reported in which the women, from 18 to 52 years old, were treated by systematic injections of boiling water into the goiter according to Porter's technic. Each one was materially improved, the symptoms becoming much attenuated or disappearing altogether. The earning capacity in each was restored, and none of the symptoms have returned during the months to date. The writers do not venture to speak of a complete cure, but they declare that at least with this simple means it is possible to induce material improvement. Some of their patients were given this boiling water treatment to prepare them for thyroidectomy, but the improvement was such that further intervention did not seem necessary. The microscopic findings are given in one case in which part of the gland was excised later. They show that the boiling water had accomplished its purpose, inducing sclerosis and proliferation of connective tissue with destruction of the glandular tissue. Some of the patients were given up to thirty injections.

91. **Perforation of the Uterus.**—Cirio and Leiva analyze five cases, showing the especially susceptible regions of the uterus and the indications for treatment. In one of their cases the perforation was not suspected until the fluid with which the uterus was being rinsed failed to return. In this and similar cases they proceeded at once to posterior colpotomy which permitted evacuation of blood and other fluids and ample drainage. When there is suspicion of injury of the intestine or omentum, a laparotomy is indispensable. Their patients all promptly recovered except in the one case of perforation from criminal auto-abortion.

94. **Synovial Cysts.**—Finochietto relates that recurrence of synovial or parasynovial cysts is disappointingly frequent whatever technic has been used in treating them, and he attributes it to the technic generally used, namely, ligation of the assumed pedicle of the cyst. In reality these cysts do not have a pedicle. The secreting inner surface of the cyst can be removed, with all its prolongations and extensions, in one piece if done with care. What is supposed to be the pedicle is merely adhesions which can be cut or broken without injury to the subjacent tissues. Puncture alone may be sufficient to cure in certain cases. In order to liquefy the contents, he injects 0.5 c.c. of solution of potassium hydroxid when the contents cannot be aspirated readily. He then

aspirates the contents with a broad needle; then injects more of the solution and aspirates anew, until finally convinced he has cleared out the cyst completely. The caustic solution must be introduced very cautiously so that none gets into the tissues around. He uses two needles, introduced on opposite sides of the cyst, the finer needle for the caustic solution, the coarse needle for the evacuation. When this aspiration alone does not cure the cyst, he injects some caustic to destroy the secreting lining, and has found very useful for this purpose a mixture recommended for hemorrhoids, namely, 8 gm. phenol; 4 gm. sodium biborate; 2 gm. salicylic acid, and 30 gm. sterilized glycerin. The first injection should not be more than 0.5 c.c. to see how the tissues stand it. Extirpation of the cyst is the last resort when all these measures fail.

95. **Normal Beef Serum in Treatment of Anthrax.**—Lignières has been unable to confirm the assertions of Kraus and Penna in regard to the curative action of normal beef serum in treatment of anthrax. He reports extensive experiments, all apparently proving his contention that the others have been misled in their statements as to its efficacy. One of his arguments is the prevalence of natural anthrax in cattle; if their serum possessed any natural defensive properties it would seem as if their serum would protect them against the disease. He asserts that if normal beef serum had a therapeutic action in Kraus' experiments and clinical experiences, a prepared immune serum would have been correspondingly more effectual.

96. **American Leishmaniosis.**—Quintana and Etcheverry state that two years ago they encountered a peculiar ulcerating affection of the shoulder in a man. It was revealed by the microscope to be the work of Leishman bodies. A few months ago in the Tucuman district the first case of leishmaniosis was diagnosed. Since then a number of cases have been differentiated. They give illustrated descriptions of ten cases, and expatiate on the prompt and effectual action of antimony and potassium tartrate in treatment. The primary lesion is always said to be some small irritation, such as might well have been caused by the bite of an insect, as it is always on exposed portions of the skin. They emphasize the points which distinguish the leishmania from syphilitic lesions with which it might easily be confused, especially as it is not always possible to find the Leishman bodies in the lesions at the time of examination.

Revista de Medicina y Cirugia, Havana

October, XXII, No. 19, pp. 505-532

97 *Pyelonephritis of Pregnancy. L. F. R. Molina.—p. 505.

97. **Pyelonephritis of Pregnancy.**—Molina credits to Rayer of Paris, 1841, the first description of the pathologic relations of pyelitis with the enlarging uterus. Albarran advocated catheterization of the ureters and rinsing out the kidney pelvis when conditions did not right themselves at once after delivery. Widal and Achard in 1912 cultivated from the blood the same germ found in the urine. Molina has found in several cases that the women had had similar attacks in former pregnancies. The colon bacillus is generally responsible for them, some obstruction in the intestine rendering the walls temporarily permeable for the colon bacillus. The pyelonephritis of parturients is usually traceable to the streptococcus or staphylococcus. In the first of the five cases reported, the high fever, severe pain in the right lumbar region, spreading forward, and the vomiting, nearly all completely subsided after catheterization of the right ureter. Nearly three weeks later the same symptoms returned as severe as before, and this time it proved impossible to introduce the catheter and a twin miscarriage soon followed. The ureter had evidently been compressed by the gravid uterus. This assumption of compression of the ureter is confirmed by a case related in which the woman supposed herself at the sixth month of her fourth pregnancy when the symptoms of left pyelonephritis developed suddenly with anuria. Catheterization of the ureter arrested the symptoms but they returned in a few days, yielding anew to the catheter. At the third recurrence, catheterization was impossible. The assumption of a pregnancy was disproved and a laparotomy disclosed a sarcoma in the broad ligament.

This nonpregnancy case was the only one of the five reported in which the disturbance was on the left side. The case shows further that a tumor can induce pyelonephritis from mere compression of the ureter without involving it in the growth. The other three cases were in parturients and all were clinically cured at once by catheterization of the ureter, leaving the catheter in place for one or twenty-four hours. He mentions that urine is not found in the ureter in these cases of assumed compression. The catheter has to enter the kidney pelvis before it reaches urine; this seems to sustain Marion's theory that the ureter yields and slides aside before the enlarging uterus or tumor and its direct compression is not possible. Molina compares further the clinical pictures of puerperal fever and of pyelonephritis. With the latter the temperature generally runs up suddenly quite high with morning remissions and there may be chills, but the general condition keeps good except for the symptoms from habitual constipation and the constant albuminuria.

Semana Medica, Buenos Aires

September 13, XXIV, No. 37, pp. 303-328

98 *Helminthiasis in Buenos Aires. S. E. Parodi and V. Widakowich. —p. 303.
99 The Public Hospitals, etc., of Buenos Aires. E. R. Coni.—p. 309. Continuation.
100 *Identification of Novocain. J. A. Sanchez.—p. 319.
101 Chronic Occlusion of the Intestines by Adhesions from Hernia. H. De-Cusatis and E. de Grossi.—p. 321.
102 Relations between Radium and Phosphorus. V. F. de Courmelles. —p. 323.

98. **Helminthiasis at Buenos Aires.**—Parodi and Widakowich report that among 300 hospital patients, 74 per cent. of the children and over 54 per cent. of the adults were found harboring helminths. There was more than one variety in over 28 per cent. of the children and over 14 per cent. of the adults. No symptoms from them were apparent in most of the cases, but it is evident that neglect to examine for helminths is responsible for the difficulty in clearing up the diagnosis in many cases.

100. **Tests for Novocain.**—Sanchez is professor of analytic chemistry at the University of Buenos Aires. He describes a number of means to identify novocain, and to estimate the purity of a specimen. He determines the latter by dropping a 0.2 per cent. solution of the novocain into a solution of 0.8 gm. bromin in 1,000 c.c. water. When pure, the novocain solution decolors a certain volume of the bromin solution.

Russkiy Vrach, Petrograd

June 17, XVI, No. 21-24, pp. 409-432

103 *Special Form of Milk Powder in Infant Feeding. N. R. Blumenau and O. M. Petipa.—p. 409.
104 *Pituitary Extract in Treatment of Incontinence of Urine. N. A. Mikhailoff.—p. 417.
105 Civilization and Medicine in Ancient Assyria and Babylon. P. V. Modestoff.—p. 418. Conclusion.
106 The Ferments in Typhoid. A. S. Solovtzovoi.—p. 423. Conclusion.
107 Morbidity in Army in Tarnopol District. V. R. Russatie.—p. 425. To be continued.
108 Experiences with Skull Wounds at Evacuation Hospital. V. P. Diedoff.—p. 429. To be continued.

103. **"Albumin Phosphate" in Infant Feeding.**—This is the name given by Danilevsky in 1901 to the precipitate thrown down when milk whey is treated with ammonia. It takes about a gallon of fresh pure milk to make 40 gm. of the "albumin phosphate."

104. **Pituitary Extract in Treatment of Incontinence of Urine.**—Mikhailoff reports nineteen cases of nocturnal incontinence in children and adults in which prompt benefit followed treatment with pituitary extract in some form. This seems to have an elective contracting influence on unstriped muscle fibers and, as the bladder sphincter is composed of unstriped muscle fibers, a favorable influence on incontinence of urine might be anticipated from its action. The success surpassed his highest anticipations. All the patients were relieved of their incontinence, including ten children who had no other known anomaly, a few young men who had incontinence both day and night, and five or six men of 38 to 42 with exclusively nocturnal incontinence. One man of 28 had been unable to retain his urine at night since the age of 16.

Nothing decidedly pathologic could be discovered in the urogenital organs. After four weekly injections of the pituitary extract he was able to retain his urine at night. The patients have been under observation for three or four months and there has been no recurrence of the incontinence to date in any of them. Mikhailoff does not wait for more extensive experience but hastens to call attention to this harmless and effectual means of relieving young and old from nocturnal incontinence. Time alone will show whether the results will be permanent.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

September 15, II, No. 11, pp. 927-1022

109 The Importance of Experiments on Living Animals for the Progress of Science. (Voor en tegen proeven op levende dieren. IV.) G. van Rijnberk.—p. 927.
110 *The Diagnostic Tuberculin Reaction. R. P. van de Kasteele.—p. 948.
111 *Simple versus Combined Drugs. W. S. van Leeuwen.—p. 957.
112 *Diagnosis and Treatment of Epidemic Cerebrospinal Meningitis. F. J. Hagen.—p. 963.
113 Lack of Compensating Pause in Ventricle Beat of Frog Heart. S. de Boer.—p. 971.
114 *Recovery of Two Children from Meningococcus Meningitis. A. Schoondermark.—p. 976.

110. **Tuberculin Reaction in Diagnosis and Treatment.**—Van de Kasteele presents arguments to show that as the skin plays a very active part in the diagnosis of tuberculosis, it probably aids proportionately in the treatment of tuberculosis when the tuberculin is given intradermally. He points to the rarity of serious forms of tuberculosis in children with tuberculous lesions of the skin. The skin foci seem to immunize the child against severe general infection. Wichmann has reported a case in which pulmonary and laryngeal tuberculous lesions subsided and the patient recovered after lupus developed, consecutive to a tracheotomy. It is possible that from the local focus which we make with our injection of tuberculin, antibodies are generated and thrown out into the circulation. The absorption from this focus of toxic substances which might injure the primary tuberculous focus is probably prevented by their destruction at the point where they are produced.

111. **Mixing of Drugs.**—Van Leeuwen writes from the Pharmacology Institute at Utrecht to protest against recent publications by Bürgi and others to the effect that the potential energy of certain drugs can be enhanced by combining them. Practical experience to date has not confirmed their theoretical premises, he says.

112. **Epidemic Meningitis.**—Hagen relates that lumbar puncture gave positive findings long before there was a tendency to stiffness of the neck in the cases in his service. Whenever it appeared the patient had been sick for some time. Even when the cerebrospinal fluid is found sterile, the petechiae in the skin suggested the correct diagnosis. Even more characteristic are lead colored spots between the petechiae or alone. These in his experience always heralded meningococcus infection even when there were no signs of meningitis or the spinal fluid was sterile. They are too large for hemorrhagic petechiae. The meningococcus was found in the blood in one case with sterile spinal puncture fluid. The trouble begins with sepsis, and only later does the infection settle on the meninges. He does not hesitate to start serotherapy at once when a man evidently acutely sick develops these lead blue spots even although the lumbar puncture fluid is still sterile. In treatment he draws from 30 to 50 c.c. of spinal fluid and injects 20 c.c. of the antiserum the first three or four days. In one case he repeated the injection the same day. In case the turbid fluid does not flow freely, he makes the injection subcutaneously. Six of the men succumbed. In two of them pus was found in the right frontal sinus besides the purulent meningitis.

114. **Meningococcus Meningitis.**—The ages were 2 years and 4 months in Schoondermark's two cases in children. Meningococci were found in the lumbar puncture fluid and the antiserum was pushed, seven intraspinal injections being given, about 6 or 8 c.c. at a time. No benefit was apparent for some days, but then the children recuperated and recovered completely with no sequelae.

Hospitalstidende, Copenhagen

September 26, LX, No. 39, pp. 933-972

115 *Carbon Dioxid Snow in Treatment of Xeroderma Pigmentosum. S. Lomholt.—p. 933.

115. **Carbon Dioxid Snow in Treatment of Pigmented Xeroderma.**—The illustrations before and after show marked benefit from the treatment with carbon dioxid snow in the case of the young woman reported by Lomholt. The reaction to the freezing was so intense that the application could be for only ten seconds at a time. The new skin that formed under it was nearly or entirely free from pigmentation, the change more pronounced, he says, than is apparent in the illustrations.

Ugeskrift for Læger, Copenhagen

September 20, LXXIX, No. 38, pp. 1565-1606

116 *Colon Bacillus Otitis. R. Lund.—p. 1565.

September 27, No. 39, pp. 1607-1644

117 Intraspinal Salvarsan Therapy. C. With.—p. 1607.

October 4, No. 40, pp. 1645-1670

118 *Scarlet Fever and Milk. A. Djørup.—p. 1645.

116. **Colon Bacillus Otitis.**—Lund states that at the clinic for ear and throat disease at Copenhagen during the last ten years 569 simple mastoid operations were done, and in 372 with the middle ear operation beside. Bacteriologic examination in 306 cases showed the colon bacillus in 12, dubious in 5 additional cases. In 2 of the 12 cases there was merely mastoid suppuration, but in the 10 others there were serious complications, mostly intracranial and multiple. The 7 cases with thrombophlebitis showed infarcts in the lung in 3 and gangrene in 2, while there was one instance each of metastatic pyothorax, pleural empyema, pneumonia, pericarditis and peritonitis. There was a mastoid abscess only in 5 of the total 12 cases, but an epidural abscess was found in 9. Diffuse purulent meningitis was encountered in 5 of the 12 cases and colon bacilli were found in the fluid in one case on lumbar puncture. The colon bacillus infection seemed to occur only as a sequence to old chronic otitis media. The mortality in the 12 cases was about 60 per cent.

118. **Scarlet Fever and Milk.**—Djørup analyzes a recent epidemic of scarlet fever at Copenhagen. One day reports of cases began to come in from all over the town, and the same day it was established that all these families took milk from one milk company. Three of the employees developed scarlet fever that same day. A fourth employee had been taken to the hospital five days before, and now had scarlet fever. This seemed to be the human source, and as he had not been near the milk distributing plant for so many days, there seemed no necessity for closing it. The children's milk was ordered to be pasteurized. But the next day there were forty-five new admissions for scarlet fever, and in five days there were 236 cases notified, and 200 of the patients had taken milk from this one milk company. It was also ascertained that the supposed "human source" had entered the hospital for treatment of a burn, and that the scarlet fever had not developed until the day that the epidemic had "exploded."

The human source was finally found in one of the two dairy farms supplying the company, an immigrant girl who did part of the milking having been sick with scarlet fever for ten days when the epidemic exploded. She had kept at work throughout. This dairy farm had been telephoned to at the first. If the question asked had been "Is there any one at the farm with hives or other eruptions?" the answer would have been in the affirmative. The scarlet fever had not been recognized, no physician having been called in. The milk from this dairy farm was returned and every one on the place was examined by a physician at night and before being allowed to go to work in the morning. In the course of two and a half weeks four persons on the farm were found to have sore throat and they were at once excluded; two of them proved to be coming down with scarlet fever. The epidemic died out the fifth day after milk from this dairy farm had been excluded from the market, the extinction of the epidemic occurring almost as abruptly as the onset. The milk distributing company paid the expense of the investigation. Diarrhea was the first sign of trouble in many of those affected but nephritis was rare. The glands in the neck became enlarged in some, and several children died.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. LXIX, No. 25 Chicago, Illinois December 22, 1917

EXSTROPHY OF THE BLADDER AND ITS TREATMENT *

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Exstrophy of the bladder is a rare congenital malformation; it is reported by Neudörfer[1] as occurring once in 50,000 births. The anomaly is probably occasioned by variations of the salts in the amniotic fluid surrounding the embryo. It is one of the most serious of malformations, as approximately one half of those suffering from it die during the first ten years of life, and the great majority are dead before they are 40. The condition is very distressing from the tenderness and the difficulty of protecting the protruding bladder, the constantly dribbling urine requiring much absorptive dressing or an equally foul smelling receptacle which leads such persons to shun society. Associated defects are epispadias in the male, an absence of the anterior pubic bone in all cases, and an apparent absence of the umbilicus, which becomes the upper margin of the mucocutaneous juncture, the urachus being absent. In the case of a child of 5 in whom exstrophy was the result of assault, it was asserted that the pubic bone later disappeared, causing the condition to resemble congenital exstrophy.[2] The lack of the pubic arch makes the pelvis apparently wider, and the sacro-iliac joints become fixed early. In the female, procreation is possible. Winslow[3] has reported the condition in a woman who had given birth to four children (Fig. 1).

The various measures for improving the condition are plastic skin covering or closure of the bladder mucosa. This method was highly developed by Roux[4] in 1852 and has been variously modified since by Thiersch,[5] Nélaton,[6] Wood[7] and others. The great defect by the plastic closure methods came from the necessity of using hair-growing skin, which later accumulates lime deposit and adds to the foulness of the uncontrolled bladder. Passavant[8] aided the closure by compressing the half formed pubic arches, and Koch,[9] König[10] and others made subcutaneous section of the bony arches. Trendelenburg[11] added to this method the partial separation of the sacro-iliac joint to more nearly approximate the pubic arches over the bladder. The septic uncontrolled pouches formed by these operations made it possible to wear some sort of drainage apparatus in which a portion of the urine could be accumulated, but the danger of diseased kidneys from ascending infection was actually increased. Additional methods of treatment were devised by Subbotin[12] and Lerda,[13] who, before closing the bladder, tunneled a space between the sphincter ani and the rectal mucosa and drew through it a folded strip of bladder wall as a tube, the anal sphincter closing the new urethra as well as the anus. The operative mortality in these cases was 25 per cent., and the bladder still remained a septic sac.

Another method for the relief of the deformity was to construct other closed cavities to serve as a bladder. Gersuny[14] separated a loop of bowel, and after establishing the continuity of the alimentary canal, brought the lower end of the loop through a tunnel opening within the anal sphincter as in the Subbotin method, the ureters being inserted into the upper end of the loop, which also developed a septic tank. The operation of Makkas[15] developed a bladder from the cecum. The ileum was divided at the ileocecal valve, which was closed on the cecal side, the ascending colon divided and both ends closed, and the ileum joined end to side in the upper segment of the ascending colon. The appendix was brought through the abdominal wall as an appendicostomy, the new bladder being emptied at regular intervals by a catheter passed through the appendix. This operation was performed in 1910. I saw his patient two years afterward. At that time the ureters were enormously dilated from the cecum to the kidneys, and the new bladder was septic. The cloaca of birds was looked on as a solution of the problem. The ureters were joined to the sigmoid or rectosigmoid, and the rectum was utilized as both a fecal and a urinary receptacle. The high mortality of this method showed a necessity for improvement in technic, but the control was good. To

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[*] From the Mayo Clinic.

[*] Presented before the Tri-State Medical Society, Dubuque, Iowa, *Sept. 6, 1917.*

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5. Thiersch: Verhandl. d. deutsch. f. Chir., 1882, **11**, 89; Zentralbl. f. Chir., 1876, p. 504, quoted by Connell (*Note 26*).
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9. Koch, C. F. A.: *Eine modifizirte* Trendelenburg'sche Blasenspaltoperation, Zentralbl. f. Chir., 1897, **36**, 953-956.
10. König: Verhandl. d. deutsch. Gesellsch. f. Chir., 1896, **1**, 77.
11. Trendelenburg, F.: *Zur Operation der Ectopia Vesicae*, Zentralbl. f. Chir., 1885, pp. 857-886; Ann. d. mal. d. org.
12. Subbotin, M.: Neues Verfahren zur Bildu . Harnröhre mit einem Sphincter aus dem Ma vesicae, Epispadie hohen Grades und Urininkontinenz, Zentralbl. f. Chir., 1901, **28**, 1257-1260.
13. Lerda, G.: Contribution au traitement de l'exstrophie de la vessie, Jour. de chir., 1913, **10**, 549-562.
14. Gersuny: Wien. klin. Wchnschr., 1898, No. 43, quoted by Connell (Note 26).
15. Makkas, M.: Zur Behandlung der Blasenektopie: Umwandlung des ausgeschalteten Coecum zur Blase und der Appendix zur Urethra, Zentralbl. f. Chir., 1910, **37**, *1073-1076.*

avoid ascending infection and dilatation of the ureters the sigmoid was divided, the proximal sigmoid joined end to side into the rectosigmoid, and the ureters inserted into the upper end of the distal sigmoid. While the feces did not flow over the ends of the ureters directly, the gas, fluids and bacteria could not be prevented from causing infection, and there was but little improvement in the mortality. Other methods were to insert the right ureter into the appendix and the left into the sigmoid, but with these also there was ascending infection of the kidneys.

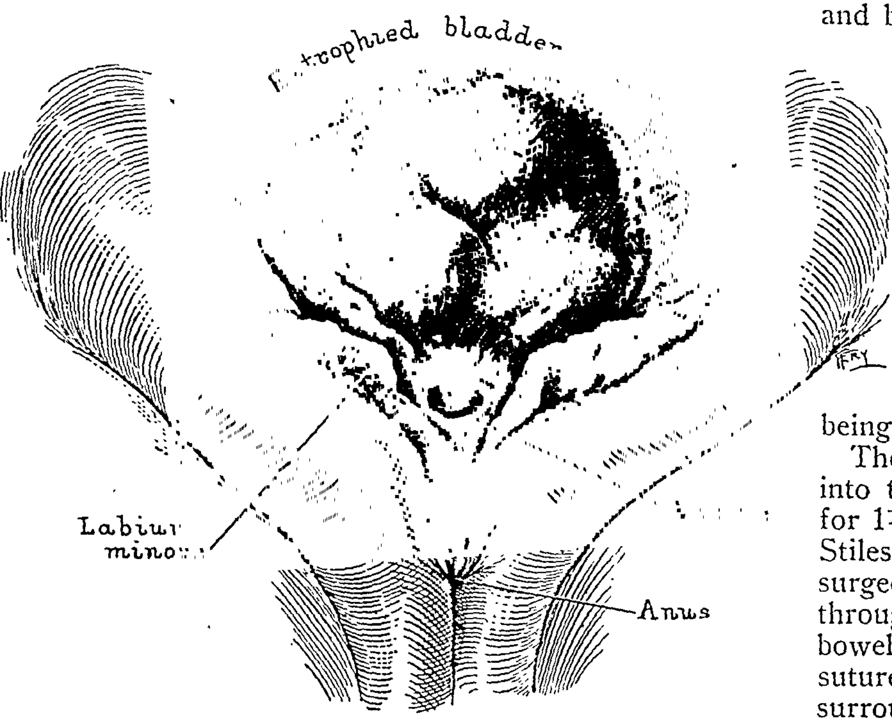

Fig. 1.—Exstrophy of bladder in the female; exposed mucosa with ureteral openings.

The next modification was to preserve the small openings of the ureters as they passed through the walls of the bladder, in the belief that this mechanism was Nature's safeguard against infection. The Maydl[16] operation, developed in 1892, removed the base of the bladder with the ureters attached and inserted the reversed segment into an incision in the anterior wall of the rectum. The operation is performed extraperitoneally and has been done transperitoneally. In the male it is not difficult, but in the female it is complicated. By this method Russian surgeons report a mortality of 32 per cent., Orlow[17] a mortality of 17 per cent. in sixty-one cases, and Drucbert[18] a mortality of 27 per cent. in eighty-one cases within fifteen days of the operation. We operated on three patients by this method, and two died. Moynihan[19] uses a larger area of the bladder in the Maydl operation, thus greatly increasing the rectal capacity. Sherman's[20] work with Peters' modification, based on the belief that the protection is in the small orifice of the ureter, was to dissect the ureter out of the bladder, retaining the mucus-covered ends intact, and to transplant them into the rectum.

It is true that Nature's method of emptying a duct is always by indirection; thus the salivary ducts, the common duct of the liver and the ureters pass through the muscularis and continue for a distance between the mucous membrane and the firmer outer wall of the cavity. Pressure from within compresses the ducts, and blocks against dilatation and ascending infection. The fact seemingly was not recognized that the mechanical principle of the passage of the ureter through the wall of the bladder and its mucosa could not be retained after the loss of its innervation. The surgical principle of such duct entrances is recognized in the Witzel[21] operation of gastrostomy and enterostomy, in which leakage is prevented by the tunnel made by folding the wall of the stomach or bowel over the tube for 1¼ inches. The Stamm-Kader[22] method accomplishes the same thing by a series of purse strings, a funnel entrance being made into the viscus.

The secret of successfully anastomosing the ureter into the bowel is to tubularize the ureteral entrance for 1¼ inches. There are two methods of doing this. Stiles[23] followed the plan of the Russian and Polish surgeons of passing the ureter into the intestine through a small opening, and depressing it into the bowel, which is folded over it, the folds being held by suture; the mechanism then consists of the ureter surrounded by the whole thickness of the wall of the intestine—the Witzel method. Coffey's[24] modification was first developed for the treatment of obstruction of the common duct of the liver by uniting it with the duodenum, and has proved most efficient for ureteral transplantation. It does not narrow the lumen of the intestine, and is carried out as follows: The peritoneum and muscularis are incised longitudinally for from 1¼ to 1½ inches down to the mucous membrane but not through it. The incision is best made in the firmer longitudinal bands of the wall of the sigmoid.

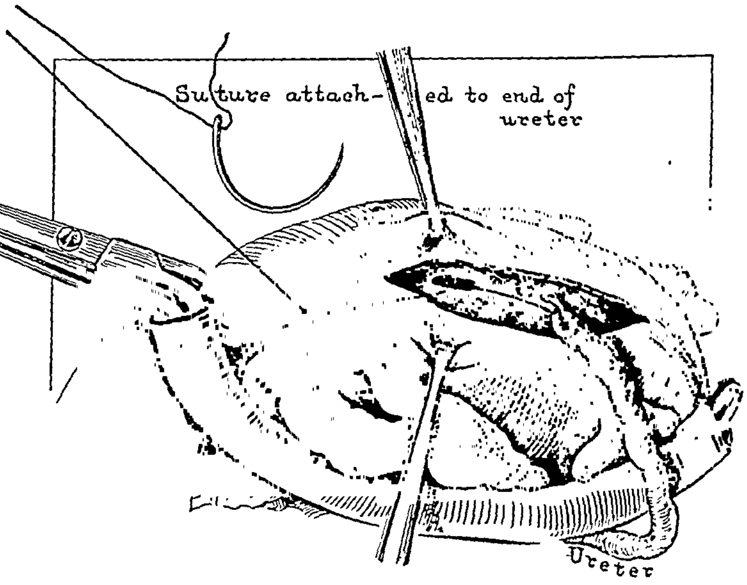

Fig. 2.—Ureter ready to be drawn through incision, into lumen of bowel.

The ureter is exposed by an incision in the peritoneum in the posterior pelvic wall, and is isolated to within

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16. Maydl, K.: Ueber die Radikaltherapie der Blasenektopie, Wien. med. Wchnschr., 1894, **44**, 25-29; 1896, **46**, 28-31.

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23. Stiles, H. J.: Epispadiasis in the Female and Its Surgical Treatment, Surg., Gynec. and Obst., 1911, **13**, 127-140.

24. Coffey, R. C.: Physiologic Implantation of the Severed Ureter or Common Bile Duct into the Intestine, The Journal A. M. A., Feb. 11, 1911, pp. 397-403.

1 or 1½ inches of the bladder, where it is divided and the distal end ligated. From 2½ to 3 inches of the ureter are separated, the posterior peritoneal incision is closed by suture to the point where it emerges, the lower end of the ureter is split for one-fourth inch, a curved needle with chromic catgut is passed through the end, the catgut is tied, and the short end of the thread is cut.

The mucous membrane in the lower end of the incision in the wall of the intestine is now perforated into its lumen. In preparing for this and to prevent contamination of the wound, a large curved rubber-covered clamp is used to hold the bowel in position, and the union is made within the curve of the clamp. The curved needle on the catgut attached to the end of the ureter is passed into the lumen of the bowel through the small opening and out of the wall of the bowel one-half inch below it. Drawing the chromic catgut suture pulls the end of the ureter into the lumen of the bowel. The needle is then passed once through the peritoneum and muscularis in order that the catgut may be tied to hold the ureter fixed within the wall of the intestine. The sides of the incision in the outer wall of the bowel are closed over the ureter, the needle including its outer tissue in two or three sutures. A second row of peritoneal sutures is placed over this, extending down over the tied knot of the fixation suture which holds the ureter in place (Figs. 2 and 3). This gives the ureter a natural duct entrance. The slightest pressure from within closes the duct, but not sufficiently to prevent the delivery of urine by the automatic and intermittent waves of contraction occurring about six to eight times a minute during the period of activity.

The abdominal incision for the work is a low lateral pelvic incision, and is best made on the right side first. As the sigmoid naturally passes to the left, it can always be reached; while if the incision is made on the left side first, the slack bowel may have entirely disappeared from the attachments of the former operations. The intestine is held by a few sutures to the posterior peritoneum so as to cover the ureteral entrance. It is best to do but one side at the first operation, as the urine is absorbed from the large bowel like a Murphy drip. Tolerance is soon acquired, however, and the slight uremic mental apathy disappears in a week. The second ureter may be transplanted with no trouble in from one to two weeks after the first operation. A small tube may be kept in the rectum for the first few days unless it adds to the discomfort. Usually at once or at least within a few days the urine will be passed at moderately frequent intervals.

The right half of the colon is the absorbing side of the intestine. Little work is done by the lymphatics, nearly all absorption being by osmosis, and the fluids are taken by the portal circulation to the liver. It is not good judgment to use the right side of the colon for an anastomosis. Experimental work recently reported,[25] in which it was hoped that by utilizing a natural duct entrance into the intestine ascending infection could be avoided, showed that one ureter could be passed through the duct of Santorini, and the absorption of the urine from one kidney would not give marked symptoms, though when the second ureter was inserted the animals died from uremia. This was also shown in Connell's[26] experiments, in which the small intestine was used. Therefore we must keep to the large bowel and preferably to its lower end. Transplanting the ureters is advisable in the few cases in which extensive destruction of the base of the bladder and urethra have occurred following childbirth.

Children should be old enough to be able to attend to their own needs, that is, from 3½ to 5 years of age. In early life, also, there may be defects in the innervation of the rectum; and if prolapse of the rectum accompanies the exstrophy, this condition must be overcome by time, or by operation before the cloacal condition is instituted. After the age of 40 it is probable that ureteral anastomosis with the skin in the back is best from the standpoint of low mortality and future length of life. In this position receptacles can be readily adjusted for the collection of urine. The report of the cases mentioned below reveals the important fact that after operation these children were able to go to school and receive an education, which was impossible in their former state. The older ones are all working. One young woman has taken a three-year course in nurse's training, and a year ago passed through an attack of erysipelas without bad results.

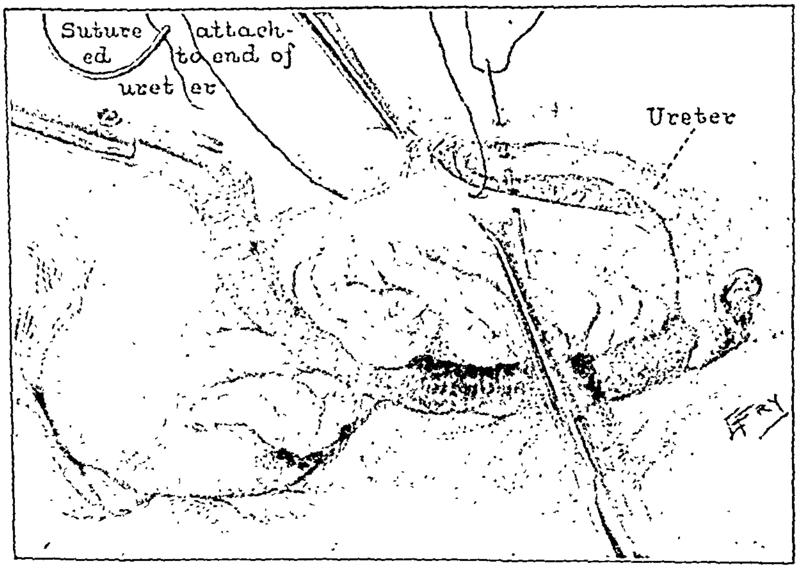

Fig. 3.—Infolded ureter in large bowel similar to gastrostomy.

Since 1896 we have seen thirty-seven patients with exstrophy of the bladder. Fifteen of these were not operated on at the time of their examination, some were too young to be operated on, and the others expected to return for operation. Six patients were operated on by the plastic method. One died six months later (traumatic exstrophy at childbirth; the child weighed 12½ pounds). The plastic operations did not afford control of the urine. Three patients were operated on by the Maydl-Moynihan method, and two died in the hospital, of uremia. Thirteen were successfully operated on by the transplantation method, with one operative death. One died from pneumonia a few weeks after leaving the clinic. One died three years after operation from pulmonary tuberculosis, and one three years after operation from typhoid fever.

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NEUROTIZATION OF PARALYZED MUSCLE BY MUSCLE GRAFTING

A LABORATORY AND CLINICAL STUDY *

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This study was undertaken for the purpose of determining whether function could be returned to a muscle paralyzed by poliomyelitis, through the growth into it of nerves from a neighboring sound muscle. This neurotization I proposed to accomplish, not by implanting a sound nerve directly into the body of the paralyzed muscle, but by splitting the sheaths of both the normal and the paralyzed muscles, scarifying the fibers so as to remove all obstruction offered by the sarcolemma to the growth and extension of nerves, and then suturing the open surfaces of the two muscles together.

It has been my experience in one or two instances that after the transplantation of the biceps to do the work of the paralyzed quadriceps, there has followed some return of power to the paralyzed muscle. This may have been the result of unintentional muscle grafting.

In a personal communication, Sayre has informed me that in 1898, after an operation for paralysis in which all the anterior muscles of the foot were affected, with the exception of the extensor longus pollicis, he had a result which could not have been due entirely to the operation unless he unknowingly did more than he had planned. He performed the Parrish operation[1]: a fusion of the tendons of the tibialis anticus and the extensor longus pollicis, operating above the annular ligament, and, through the incision, he had made a careful examination of all the other muscles. Much to his surprise, power returned to the extensor communis digitorum. It is possible that he destroyed the intermuscular septum and the sarcolemma sufficiently to permit a muscle grafting.

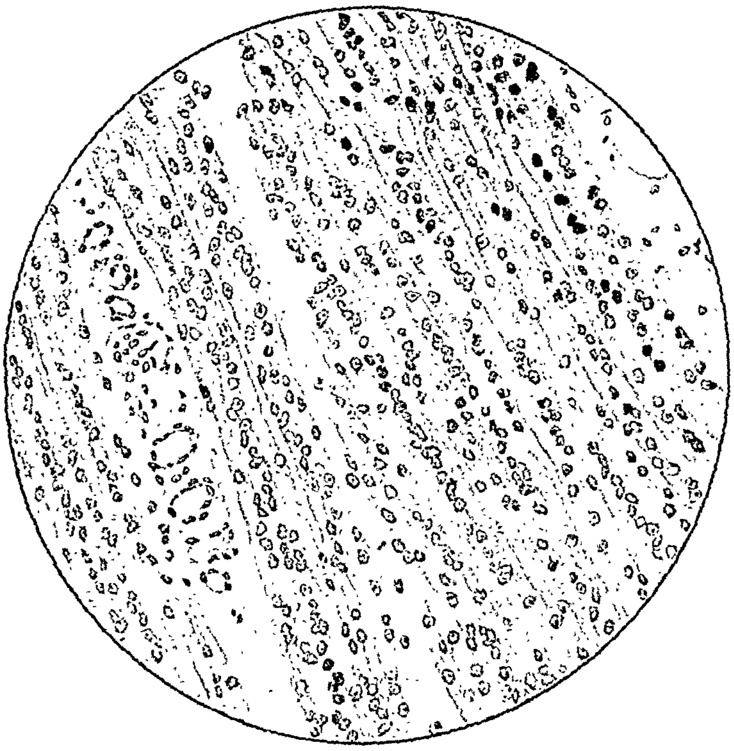

Fig. 1.—Muscle paralyzed by poliomyelitis. Fibers shrunken as in atrophy from disuse.

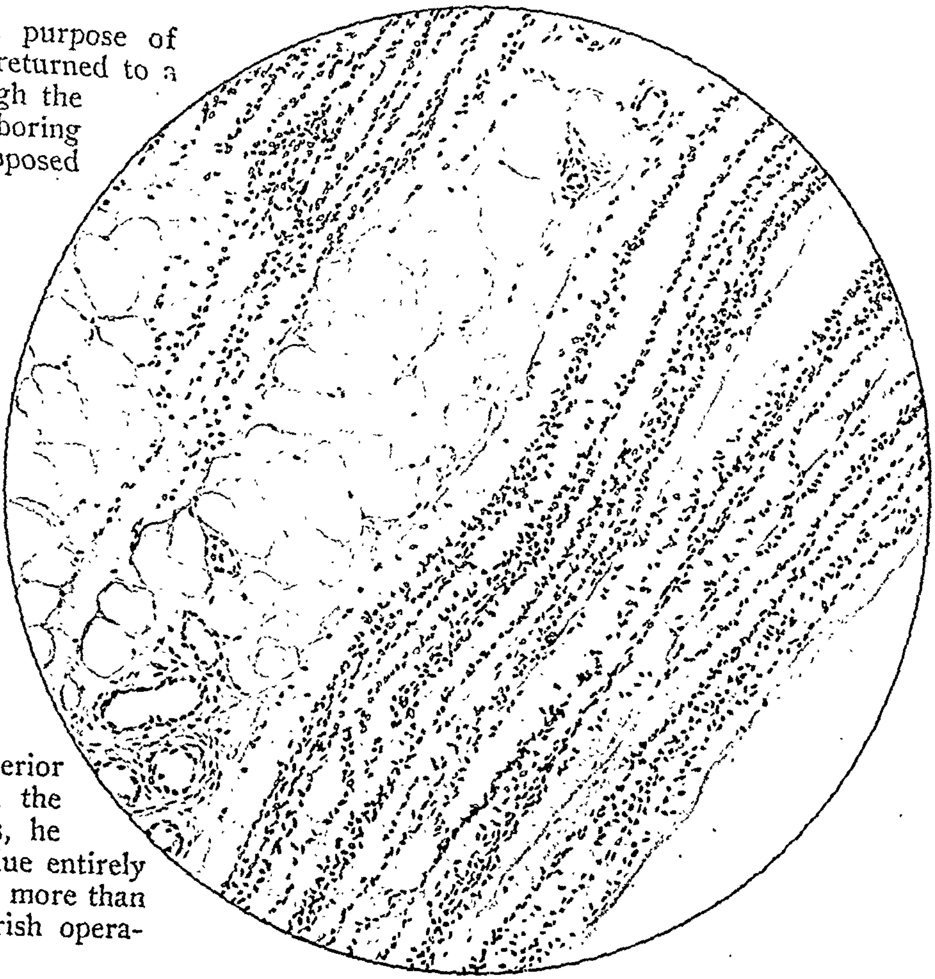

Fig. 2.—Muscle paralyzed by poliomyelitis. The great number of nuclei show that an unsuccessful attempt at regeneration has been made. Striations are absent; fibers are shrunken, and fat is deposited between them.

In June, 1905, Gersuny[2] grafted the deltoid to the trapezius for a shoulder paralysis. The patient was a young man and the cause of the condition is in doubt. After three months there was a slight return of movement. During the following months, improvement continued until in November the arm could be used normally except for the fact that it was still weaker than the other arm.

In February, 1907, von Hacker[3] operated for paralysis of the shoulder which followed an operation for tuberculous glands of the neck. His muscle grafting was at least partially successful, as the patient could lift the arm to the horizontal five months later.

The neurotization of paralyzed muscle by nerve implantation has been done by several surgeons. Heineke[4] has reported successful experiments, and Erlacher[5] has not only reported successes but claimed that hyperneurotization is possible. Steindler[6] of Iowa City has been successful in neurotizing paralyzed muscle by the implantation of sound nerves, but he does not believe it possible to hyperneurotize a muscle.

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* Read before the Society of Alumni of Bellevue Hospital, Oct. 3, 1917.

[1] Parish, B. S.: A New Operation for Paralytic Talipes Valgus and the Annunciation of a New Surgical Principle, New York Med. Jour., 1892, **56**, 402.

[2] Gersuny: Wien. klin. Wchnschr., 1906, **19**, 263.

[3] Von Hacker: Mitt. d. Ver. d. Aerzte in Steiermark, 1908, **45**, 58.

[4] Heineke: *Zentralbl. f. Chir.*, *1914*, **41**, *465*; *Arch. f. klin. Chir.*, *1914*, **105**, *517-523*.

[5] Erlacher: Ztschr. f. orthop. Chir., 1914, **34**, 561; Zentralbl. f. Chir., 914, **41**, 625; Am. Jour. Orthop. Surg., 1914-1915, **13**, 22.

[6] Steindler: Am. Jour. Orthop. Surg., 1914-1915, **13**, 33; ibid., 1916, **14**, *707*.

Elsberg[7] has determined a remarkable fact, namely, that if an artificially paralyzed muscle is implanted with its original nerve and also another motor nerve, reestablishment of function takes place through the original nerve and not through the foreign nerve. On the other hand, if the original nerve were not implanted, the foreign nerve would take up the work. He agrees with Steindler that hyperneurotization is impossible. He also found that eight weeks of paralysis produced the characteristics of atrophy, and that eight weeks after nerve implantation, normal appearance was regained and good contraction established. He reports several successful neurotizations, in which he transplanted a portion of the sound muscle with the nerve. Gerster and Cunningham[8] report successes with nerve implantation.

By experimenting on dogs, I have sought to inform myself regarding paralytic changes in muscles and also the changes which take place as a result of muscle grafting. This part of the work has been carried on in the Department of Experimental Surgery of the New York University and Bellevue Hospital Medical College. The histologic studies have been made by Dr. Alexander Fraser of the pathologic department.

The anterior tibial and the sciatic nerves were selected for section in the work on dogs. After an interval following the former operation and varying from two to six weeks, the paralyzed tibialis anticus muscle was grafted to the normal peroneus. After resection of a portion of the sciatic, the vastus externus was grafted to the paralyzed biceps.

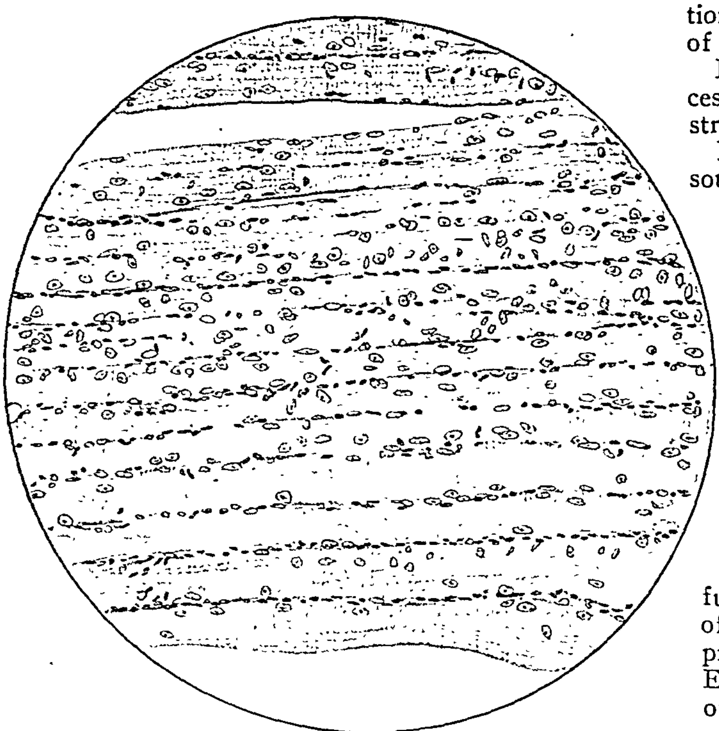

Fig. 3.—A successful attempt at regeneration in a dog. Fibers are compact, and striations may be seen.

Figure 1 shows atrophy in a specimen taken from a case of poliomyelitis. The same characteristics would be present in an atrophy from disuse. If there is absolute separation of a muscle from all nerve supply, a condition seldom obtained and perhaps impossible to obtain except in the case of the external rectus of the eye, the fibers undergo fatty degeneration. In atrophy from poliomyelitis, however, the muscle fibers are shrunken, and the nuclei increased, and there is no evidence of fatty degeneration.

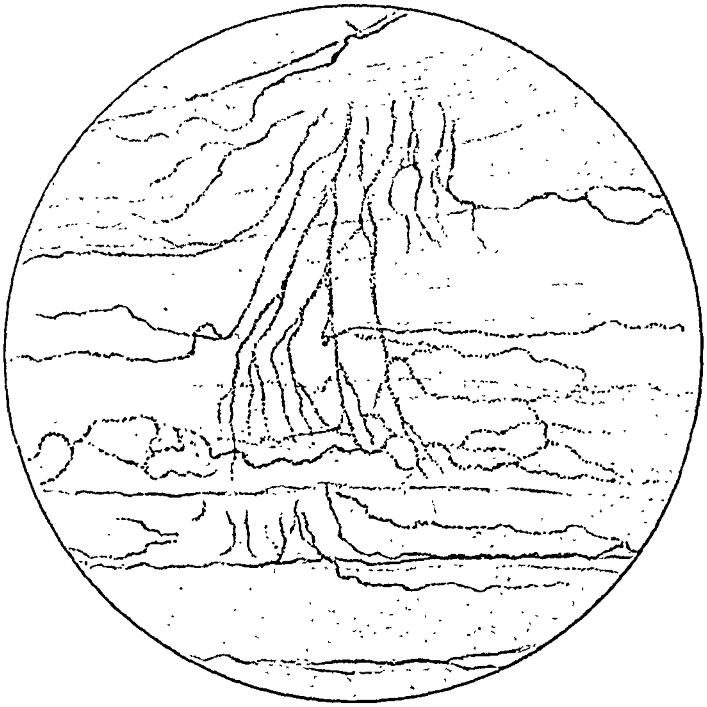

Fig. 4.—Nerves growing from paralyzed muscle above into paralyzed muscle below. Their dotted appearance and the straightness of their course are characteristic of new nerve growth.

Figure 2 shows an unsuccessful attempt at regeneration. The great number of nuclei testify to the activity of the endeavor, but there are no striations of fibers.

Figure 3, obtained from a dog, illustrates the successful attempt at regeneration. Note the nuclei, the striations and the compactness of the fibers.

Figures 4 and 5 show the growth of nerves from the sound muscle into the paralyzed muscle.

Figure 6 shows an end plate which in all probability is from the new nerve growth following the grafting operation.

The last three specimens were taken from a dog six weeks after the grafting operation and nine weeks after the artificial paralysis.

The operations on patients have been performed at the State Hospital for the Care of Crippled and Deformed Children and at the College Clinic. Specimens were taken and examined by Fraser from all of the clinical cases except six. The extent of atrophy was found not to be commensurate with the time since the attack, but to depend on the completeness of the paralysis. Loss of function may be complete in two muscles, and yet one of them may have sufficient nerve supply preserved to prevent the complete atrophy experienced by the other. Electricity has not helped me in estimating the extent of the paralysis, that is, the extent of the nerve supply remaining after the easily demonstrated loss of function. The discovery of some method of ascertaining the exact condition of the muscle before operation is greatly to be desired.

It is quite obvious that any attempt to regenerate a muscle which has lost all trace of muscle fiber would be futile. This was true in several of the patients operated on. They are all reported as cases of muscle

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7. Elsberg: Science, New York, 1917, 45, 318.
8. Gerster and Cunningham: Med. Rec., New York, 1917, 92, 23.

grafting, since I finished the operations as nearly as possible as originally planned.

The operation is done as follows: An incision is made to bring into the field the bellies of the two muscles. Both are split lengthwise. The deeper edges of the two opened surfaces are sewed together with chromicized catgut. A few interrupted sutures are so placed as to approximate the central parts of the two freshened surfaces, and then the upper edges of the cuts are sewed together. The skin wound is then closed.

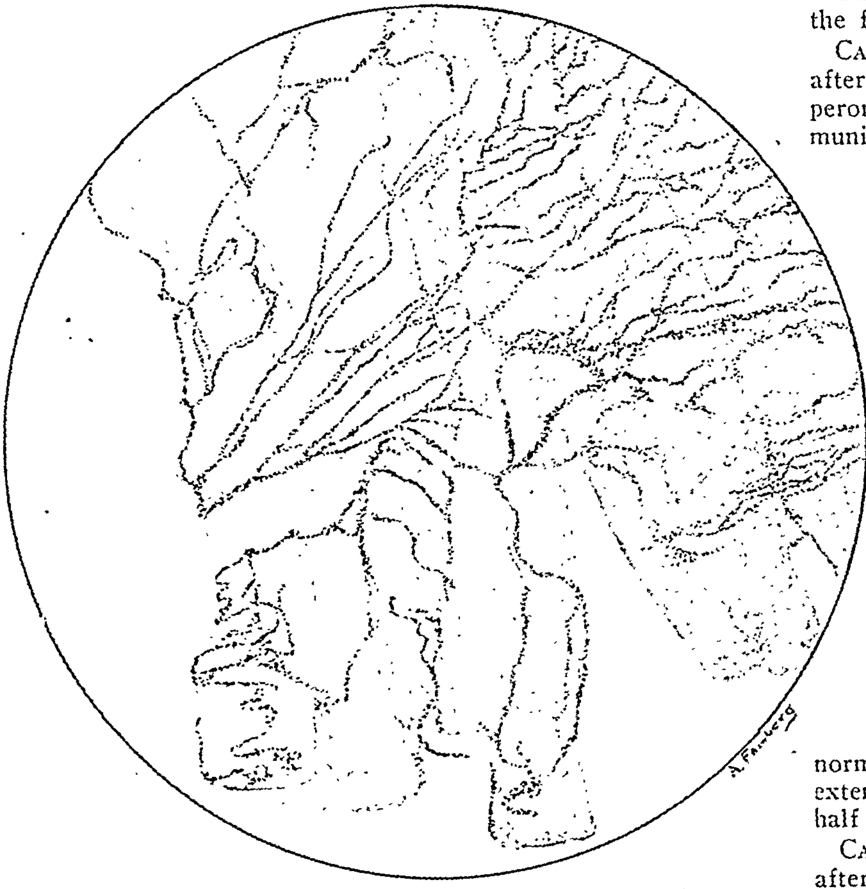

Fig. 5.—Another section showing new nerve growth.

It will be seen that even if nothing is gained by such an operation, nothing is lost. No function is sacrificed, as is the case in such operations as muscle transplantation, tendon fixation and nerve implantation. The objection to early operation, which is so valid in all other procedures, does not hold good for this operation.

Sixteen cases, all I had done up to August, are here reported in the order of operation. In four of them, two paralyzed muscles each were operated on, making a total of twenty muscle graftings. Seven were complete failures, although one of these was operated on as recently as July 27 and may yet prove to be of some value. Six patients show a slight return of power, which, however, is by no means sufficient to be of functional use. This slight power, as we know from similar results in muscle transplantation, may add to the strength of the joint and thus be of some benefit. Four cases have given fair results and three good results. The last seven cases give us the courage to report our work at this time, although we fully realize that much more will have to be done in both the laboratory and the clinic before the operation should be either unconditionally accepted or discarded.

REPORT OF CASES

Case 1.—C. B., aged 15, was operated on, Dec. 15, 1915, after an attack occurring nine years before. The normal gastrocnemius was grafted to the paralyzed peroneus longus. There was no return of power.

Case 2.—J. D., aged 18, was operated on, Dec. 11, 1916, after an attack in early childhood. The normal soleus was grafted to the paralyzed peronei.

The result was good, as the peronei can now contract and the foot can be abducted.

Case 3.—G. B., aged 14, was operated on, Feb. 12, 1917, after an attack occurring five years previously. The normal peroneus longus was grafted to the paralyzed extensor communis digitorum.

The result was good, as it was estimated that there was a return of fully half the muscle's normal power. A second operation was performed, March 18, when the normal biceps was grafted to the paralyzed vastus externus.

The result was slight, as the patella can now be moved upward and outward in attempts to extend the leg, and, with the opposition of gravity removed, extension is possible.

Case 4.—E. N., aged 9, was operated on, Feb. 12, 1917, after an attack occurring at the age of 3. The normal tibialis anticus was grafted to the paralyzed extensor longus pollicis. There was no return of power.

Case 5.—B. S., aged 13, was operated on, Feb. 23, 1917, after an attack occurring seven years previously. The normal peroneus longus was grafted to the paralyzed extensor communis digitorum. There was a slight return of power.

Case 6.—J. M., aged 10, was operated on, Feb. 23, 1917, after an attack occurring four years before. The normal extensor longus pollicis was grafted to the paralyzed extensor communis digitorum. The result was good, as fully half the normal power was restored.

Case 7.—H. B., aged 9, was operated on, March 7, 1917, after an attack occurring six years previously. The normal extensor longus pollicis was grafted to the paralyzed tibialis anticus and the normal soleus to the paralyzed tibialis posticus. There was no return of power.

Case 8.—M. M., aged 4, was operated on, March 12, 1917, after an attack occurring ten months previously. The normal biceps was grafted to the paralyzed vastus externus. A fair result was obtained with the opposition of gravity removed; the patient can extend his leg.

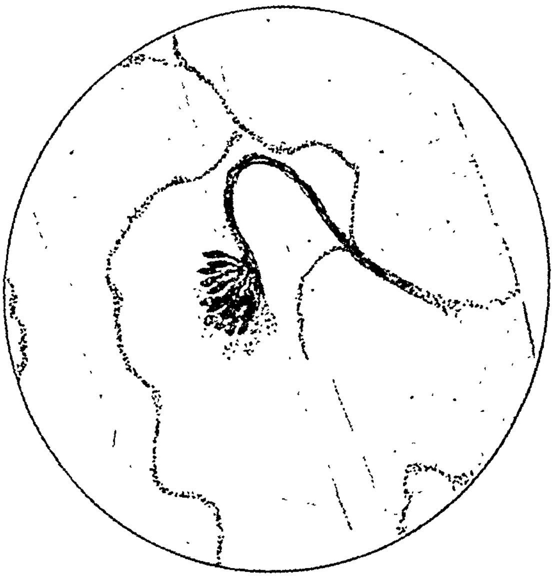

Fig. 6.—An end plate from a muscle-grafting specimen, in all probability from the new nerve growth.

Case 9.—J. C., aged 2, was operated on, March 12, 1917, after an attack occurring one year previously. The normal tibialis anticus was grafted to the paralyzed extensor communis digitorum, and the normal flexor longus digitorum to the paralyzed soleus. The result was a fair return to the extensor communis digitorum, and a very slight return to the soleus.

Case 10.—M. H., aged 6, was operated on, March 15, 1917, after an attack occurring one year previously. The normal extensor longus pollicis was grafted to the paralyzed tibialis anticus. The result was a slight return of power.

Case 11.—H. McC., aged 9, was operated on, March 23, 1917, after an attack occurring one year previously. The normal peroneus longus was grafted to the paralyzed extensor longus digitorum. There was no return of power.

Case 12.—R. L., aged 9, was operated on, April 1, 1917, after an attack occurring seven years previously. The normal biceps was grafted to the paralyzed vastus externus.

There was a slight return of power, so that the patient can now extend his leg, with the opposition of gravity removed.

Case 13.—E. H., aged 11, was operated on, May 3, 1917, after an attack occurring at the age of 2. The normal peroneus was grafted to the paralyzed soleus, and the normal extensor longus pollicis to the paralyzed tibialis anticus.

Fair results were obtained in the tibialis anticus and none in the soleus.

Case 14.—M. E., aged 12, was operated on, May 7, 1917, after an attack occurring in early childhood. The normal peroneus longus was grafted to the paralyzed soleus. The result was fair, as the muscle now contracts with perhaps half its normal strength.

Case 15.—W. L., aged 12, was operated on, July 27, 1917, after an attack occurring five years previously. The normal extensor longus pollicis was grafted to the paralyzed tibialis anticus. The result was a slight return of power.

Case 16.—R. S., aged 5, was operated on, July 27, 1917, the time of the attack being unknown. The normal extensor longus pollicis was grafted to the paralyzed tibialis anticus. There was no result.

Fifty-Fifth Street
and Seventh Avenue.

Death Rate and Invalidity in Australia.—The report of the Committee Concerning the Causes of Death and Invalidity in the Commonwealth of Australia, issued in 1917, contains some interesting figures on community health in that country. In 1914 the general death rate for males was 11.7, for females, 9.3 per thousand. In our own registration area for the same period, the rates were 14.5 and 12.7 per thousand. One of the reasons assigned for the lower rate in Australia is the fact that the country is peopled with young men and women. A standardization for age would increase the rates.

The infant mortality rate in 1913 was 72.2 per thousand infants born alive. The lowest rate ever recorded in Australia was 68.5 in 1911. New Zealand had a rate of 51.4 in 1914. The rate in the United States, in our most progressive cities, when it does not exceed 100 is considered very favorable. The birth rate in Australia in 1914 was twenty-eight per thousand as against forty-four per thousand in New South Wales in 1864 and thirty-eight in Victoria in 1870. This shows a decrease in the birth rate, as in European countries and the United States.

THE USE OF RELAXATION INCISIONS IN DEALING WITH EXTENSIVE UNSTABLE SCARS

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The treatment of tightly stretched unstable scars that frequently break down has long been a source of worry to the surgeon, and of distress to the patient.

This type of scar usually follows extensive deep burns, or loss of tissue by trauma when the wound has been allowed to heal by the slow process of cicatrization, without the aid of skin grafting or of plastic operation.

The original wounds are always large and usually involve the entire circumference of a part, such as the leg or thigh, or occasionally the calvarium. In other words, the scar surrounds and compresses the part.

Some of the scars are bluish red with fine superficial vessels, while others are pale and seem to have little or no blood supply. Frequently there are superficial ulcers of varying size scattered over the surface. The scars are as unstable as wet tissue paper, and the slightest injury will start an ulcer that will require weeks to heal.

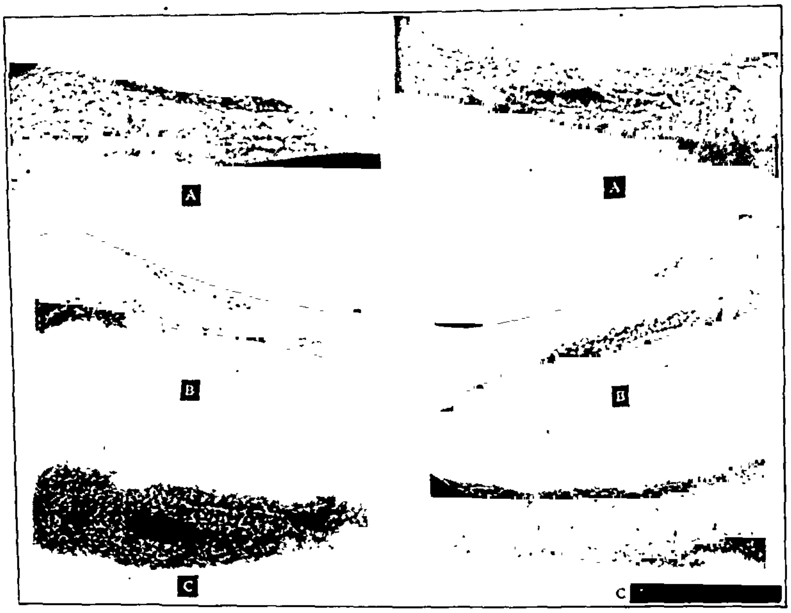

Fig. 1.—Scar involving the entire circumference of the leg. The patient had been bedridden for twenty-five months following a third degree burn. After the superficial ulcers were healed, three relaxation incisions were made under Schleich's infiltration anesthesia down to the deep fascia. The tissue was unfavorable for immediate grafting; hence granulation tissue was allowed to form in the wounds. *A*, four days after the incisions were made. The atrophy of the leg should be noted. The widths at the centers of the incisions were 3, 2¼ and 1¾ inches. These defects were grafted with small deep grafts on the fifth day after the operation. *B*, the individual grafts and the firm, healthy appearance of the scar between the grafted areas, two months after grafting. *C*, six months after grafting. The width of the grafted areas should be noted. The depressions have filled up to the normal skin level. The leg has developed, and the patient walks without difficulty, and has again taken up his work.

There is little resistance to trauma or infection, and an area that is healed may, without any apparent cause in a very short time, break down entirely, or multiple ulcers may develop.

A number of these patients have come under my care, and for a long time they gave me much trouble. After I had used many methods with little success, it occurred to me to try relaxation incisions, and to graft the defects thus made.

TECHNIC

It is preferable that the area be entirely healed before the incisions are made, but in some instances when the healing of the superficial ulcers has been extremely sluggish I have not waited for complete healing, but have operated as soon as the granulations have been brought into healthy condition. In preparation for operation in the unhealed cases, after the granulations are healthy, the part is put up in a dressing kept wet with physiologic sodium chlorid solution for twenty-four hours. The granulations are then painted with tincture of iodin, and the surrounding scar is cleaned with ether and alcohol.

Often the relaxation incisions can be made after infiltration with a local anesthetic, such as Schleich's solution, or 0.5 per cent. novocain. In other instances a general anesthetic is advisable, especially if large immediate Thiersch grafts are to be used to cover the defect.

On an arm or a leg (Fig. 1) long incisions should be made, parallel to the length of the part, down to the deep fascia or down to healthy tissue, if the destruction has been deeper than the fascia. Three relaxation incisions are usually sufficient for a limb, and they result in gaping wounds.

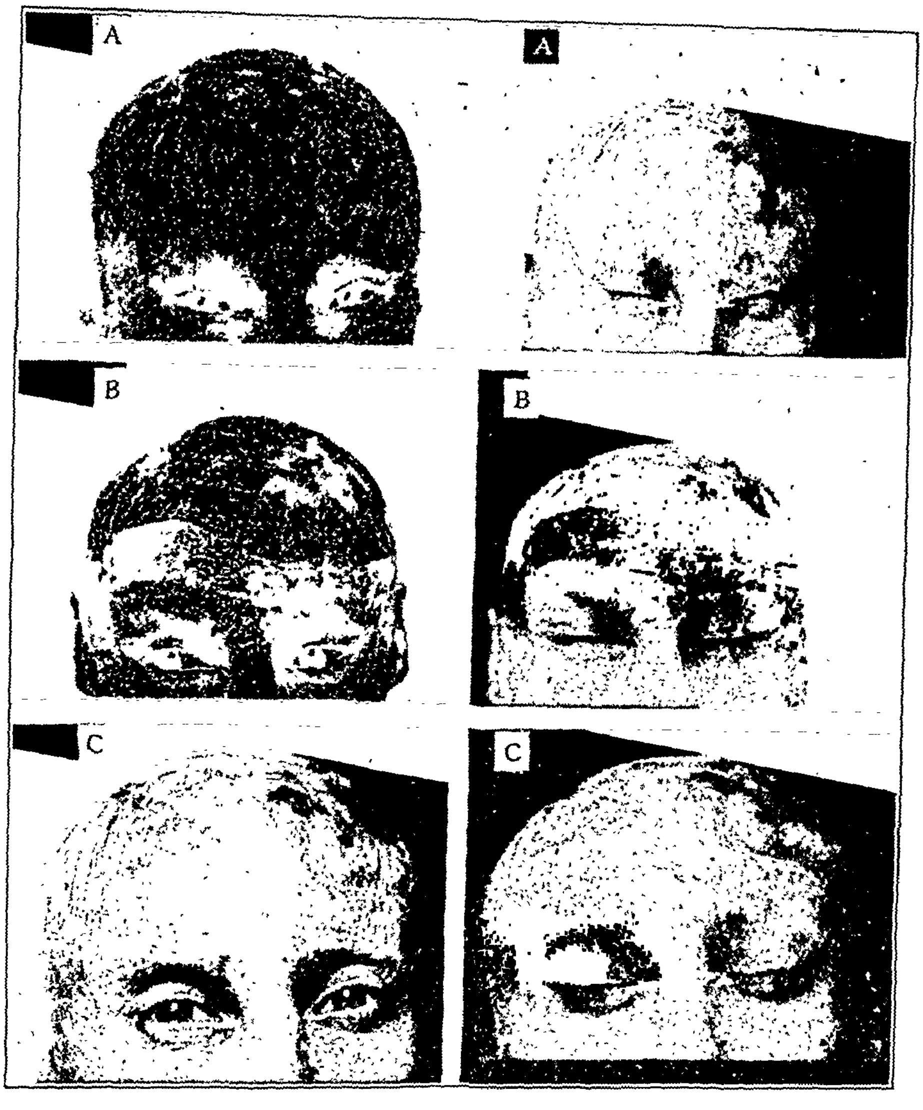

Fig. 2.—A tightly stretched adherent scar covering the entire cranium, the result of spontaneous healing following complete scalping. There were numerous superficial ulcerations. After ten days' treatment, and before complete healing of the ulcers, the relaxation incision was made. On account of the adherence of the scar to the skull, undercutting was necessary. A defect from 1⅓ to 2 inches wide was made across the forehead, from temporal region to temporal region. General anesthesia was necessary in this case, and the defect was grafted immediately with a single Thiersch graft from the thigh. *A*, before operation, five years after the accident. The face has the typical Mongolian expression caused by the pull of the scar tissue. The superficial ulcers should also be noted. *B*, two weeks after grafting. The graft has taken completely, and the ulcers are healed. Note the disappearance of the Mongolian expression. *C*, five months after grafting. The tension on the eyelids has been permanently relieved, and the condition of the scar on the vertex is much improved.

COMMENT

The immediate spread of each relaxation incision varies with the tightness of the scar. In some instances, it is as much as from 2½ to 3 inches at the center of the incision. The spread of the first incision is, of course, the widest.

After the tension is relieved, the appearance of the scar tissue between the incisions soon changes, and instead of the thin, glossy, mottled look, the tissue seems to thicken and to acquire greater stability. This improvement is much more marked after a few days.

When the scar is stretched over a broad expanse of bone, such as the skull (Fig. 2), as many horizontal incisions as may be necessary should be made down to the periosteum. The spread of relaxation incisions over bone is not so marked as over soft parts, and some undercutting may have to be done.

In these cases the beneficial effect is more marked after a week or two, but in the end the result is very satisfactory.

In some cases of very long standing the tissue, exposed by relaxation incisions, has atrophied from pressure and lack of use, and has such a poor blood supply that immediate grafting is unwise. In these cases it is advisable to wait for several days until the wounds are lined with granulation tissue, and then to apply the grafts.

In other instances, immediate grafting is justified; but this point must be determined at the time of the operation.

It is extraordinary to note the rapidity of healing of the superficial ulcers after the relaxation incisions are made.

I have used only small deep grafts and Thiersch grafts on the defects caused by the relaxation incisions. These grafts so far have been entirely satisfactory; however, there is no reason why grafts of whole thickness skin should not be used in cases in which this type of graft may be necessary.

There has been no recurrence of superficial ulceration in any case when the tension has been completely relieved by the method previously described.

CONCLUSIONS

By the use of relaxation incisions with immediate or subsequent skin grafting of the defects, large unstable scars can be strongly healed in a comparatively short time, and patients who have been incapacitated for many months can resume their usual occupations.

I have used this method in a number of cases, with uniform success, and feel that it is a rational procedure and well worth trying.

1200 Cathedral St.

Exportation of Condensed Milk.—In order to discourage the operations of food speculators who have been purchasing for export from the retail stores the brands of condensed milk which the manufacturers have set apart for the American public, the War Trade Board, at the request of the *Food Administration*, has announced the following regulation to govern the exportation of condensed milk: "No licenses shall be granted for the export of condensed, canned, powdered or other forms of preserved milk unless there shall have been filed with the Bureau of Exports a certificate of the manufacturer stating that such milk has been sold directly to the exporter and for export purposes, or unless compliance shall be had with such other regulations as may be determined by the Food Administration." According to *Commerce Reports* speculation in food products has created a false condition of the market.

PROPHYLAXIS IN CEREBROSPINAL SYPHILIS *

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Of the treatment of general paresis, Ogilvie[1] has said:

> The real problem is to recognize invasion of the central nervous system before even the interstitial tissue or the meninges are involved to any destructive extent. It is the consistent opinion of authorities generally that these parts are invaded prior to this period. If neurologic involvement is detected at this stage, we have adequate means of controlling it, and if these are judiciously employed, general paresis will, in not far distant years, become a comparatively rare picture in medicine.

We may add, not only general paresis but any form of cerebrospinal involvement.

There is no form of the later manifestations of syphilis so heartrending to the patient and his family and so discouraging to the clinician as the involvement of the cerebrospinal system. Occurring most frequently many years after the primary infection, this class of cases presents a pitiful picture, for once the nerve tissue of the patient has been destroyed, all hope of regeneration is lost. It is true that the condition may be arrested, but most cases levy an economic toll of loss on both the state and the family.

In 1914,[2] I called attention to the value of cerebrospinal fluid examinations in so-called "cured" syphilis in patients treated by the biologic method, that is to say, by a Wassermann examination of the blood. This report showed that many patients having a negative blood Wassermann reaction for from eighteen months to two years without treatment had subarachnoid involvement. It was recommended that lumbar puncture, with spinal fluid examinations, be demanded in all cases of syphilis, no matter what the stage of the disease, as a control on future complications of the nervous system.

Since that time, as an additional diagnostic aid, 108 spinal punctures have been made on all patients, regardless of whether or not a definite history of syphilis was obtainable.

Each serum was examined for cell count after the method of Swift and Ellis, and for globulin by the method recommended by Ross Jones. The serologic examinations were made according to the original Wassermann technic, serial dilutions up to 1 and 2 c.c. being used. Recently the colloidal gold chlorid test has been employed in addition.

The percentage of cases showing involvement of the cerebrospinal system without clinical symptoms is as follows: primary, six cases with no involvement; secondary, twenty-seven cases, nine of which showed involvement, or 33⅓ per cent.; tertiary, five cases, two of which showed involvement, or 40 per cent., and latent, seventy cases, twenty-two of which showed involvement, or 31 per cent. Summing up these cases, we have, out of 108 cases of syphilis, thirty-three, or 30 per cent., which, although without definite clinical symptoms, showed early involvement of the nervous system. Surely this class of patients, if permitted to go untreated, will eventually show signs of degeneration as a result of their infection.

One eminent author[3] says that if dermatologists and genito-urinary surgeons were familiar with the early manifestations of nerve involvement they would uncover many cases of syphilis of the nervous system. This is undoubtedly true, and therapeutic attack begun early is now most promising of success. But what about the clinician who is unable to detect these early manifestations of cerebrospinal involvement?

Unfortunately, a large percentage of syphilitic patients are treated by members of the medical profession other than specialists. Often the diagnosis is delayed, and treatment is given with the object only of healing up lesions and securing a negative blood Wassermann reaction.

Today, syphilis exists everywhere and, if we read the statistics, we shall see that it bids fair to increase. The report of the United States Public Health Service, dated April 27, 1917, gives the following figures for syphilis and tuberculosis for the year 1916 for the city of New York, with an estimated population of 5,062,841: 20,128 cases of syphilis were reported, the rate being 3.592 per thousand, and 19,297 cases of tuberculosis were reported, with a rate of 3.444 per thousand. If we consider the difficulty of securing accurate data from the imperfect reporting of venereal diseases as compared with the highly efficient methods of reporting tuberculosis, the rate for venereal diseases is probably even greater.

What is going to happen to this vast army of syphilitics in the future?

Many observers have not the training or the skill to locate every minute nerve change; but a lumbar puncture, if made when the patient presents himself for examination, no matter how long previously he was treated and discharged, will reveal the true pathology as regards the cerebrospinal fluid. This is illustrated by Case 1.

CASE 1 (135).—A man came to my office one morning complaining of a slight urethral discharge. A slide was prepared, and he was instructed to urinate. This he said he could not do while I was in the room, so I went out. Returning in a few minutes, I noticed the lack of force of the urinary stream. I immediately asked him if he had ever had syphilis. "Oh yes," he said, "but I had a negative blood Wassermann." On further examination, the knee reflexes were found to be absent. This patient was strong and well, as far as he knew, and had never been sick in his life. The urinary symptoms were of such gradual development that they had attracted no attention. The spinal fluid examination revealed: cells, 122; globulin test, positive, and Wassermann reaction, positive.

With the discovery that active spirochetes can be recovered from the cerebrospinal fluid of patients suffering from cerebrospinal syphilis, ways and means of attacking the disease in the nervous system have been devised, and in some hands many of the methods have been fairly successful.

Most of the methods aim to introduce the specific agent or some modification thereof directly into the spinal canal. These methods at best, however, require special technic, and often after the most careful management, complications occur.

Having had considerable experience with the Swift-Ellis method and with that devised by Ravaut, I was reluctant to try these methods in early cases.

Few observers realize that to attempt intraspinal treatment in cases of secondary, tertiary and latent syphilis, and even in early tabes, is a mistake. In

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* Read at the meeting of the Mississippi Valley Medical Association, Oct. 9-11, 1917.

[1] Ogilvie, H. S.: Am. Jour. Syph., 1917, 1, 509.

[2] Corbus, B. C.: Cerebrospinal Examinations in "Cured" Syphilis, THE JOURNAL A. M. A., Aug. 15, 1914, pp. 550-552.

[3] Fordyce: Med. Rec., New York, Sept. 30, 1916, p. 575.

1914 I[2] recommended that intensive intravenous injections should always be tried, especially in early cases, before intraspinal injections are resorted to. Sachs,[4] in a recent article, discusses the question of the therapeutic value of intraspinal injections. He reviews the situation impartially and comments on the failure of the intraspinal method.

Recently there has come under my observation a number of patients with slight symptoms referable to the nervous system in whom intraspinal treatment had been instituted in the form of mercurialized serum, with the result that complications more dangerous than the original symptoms arose.

Gilpin and Earley[5] believe that lumbar puncture, performed every week, or every two to three weeks, in order to reduce the pressure within the spinal column while intramuscular mercurial injections are being given, helps the mercury to pass into the cerebrospinal fluid.

Acting on this idea, I give intensive salvarsan injections combined with mercury rubbings in the following manner: Having satisfied myself by previous lumbar puncture as to whether or not definite or indefinite symptoms of subarachnoidal involvement are present, I give five doses of salvarsan, or some of the newer substitutes, in the course of two weeks. If the treatment is begun on Saturday, a second dose is given the next Wednesday, a third dose the following Saturday, a fourth dose the next Wednesday, and a fifth dose the following Saturday. The blood is examined at this time to see if arsenic is present. If so, it can be demonstrated by the Abelin test, which is as follows:

Reagents.—These are (1) resorcin, chemically pure; (2) hydrochloric acid, 20 per cent.; (3) sodium nitrite, 0.5 per cent.; (4) sodium hydroxid, 30 per cent.

Technic.—A 7.5 per cent. solution of resorcin is made up in the 30 per cent. sodium hydroxid. This can be kept as a stock solution. To 0.5 c.c. of cooled blood serum in a tube are added 8 drops of the hydrochloric acid and then 10 drops of the sodium nitrite solution, all of which are thoroughly mixed. In another tube is placed about 1 c.c. of the resorcin solution, to which is added, drop by drop, the serum treated with the acid and nitrite solution. In the presence of salvarsan or a changed amino derivative, a beautiful rose red contact ring appears most definitely in from one to two minutes. Normal serum gives a yellow ring.

One hour after the last injection, the patient is taken to the hospital, and lumbar drainage is performed. By this I mean the withdrawal of from 20 to 30 c.c., according to the pressure.

The great difficulty, as we all know, has been our inability to get salvarsan into the subarachnoid space in sufficient quantities to destroy the spirochetes.

It has been shown that salvarsan passes into milk secreted by the lacteal glands. Why, then, will it not pass through the choroid plexus if conditions are made ideal? The subarachnoid fluid is said to be secreted from the choroid plexus. If the fluid in the space is withdrawn in excess, the plexus must replace the fluid from the blood stream, which is saturated with salvarsan. This seems to me an ideal way to attack the infection. It compels the plexus to refill the canal from a blood stream saturated with salvarsan.

The patients are kept in bed for thirty-six hours with the foot of the bed elevated for twenty-four hours of that period.

In about ten days after this procedure, mercury rubbings are begun and continued for from three to four months. Then the salvarsan is again administered as previously described, lumbar drainage is performed, the fluid is examined, and the result is compared with the first examination.

It is my plan to continue the foregoing treatment twelve months after obtaining a negative spinal fluid, that is, through two series of salvarsan injections of five each and ten months of rubbings.

On alternate nights, during the treatment with mercury, the patient is rubbed on the chest and the back. Twice a week a hot bath is given, and the ointment all scrubbed off with soap and water. The patient is instructed to buy a tight-fitting undershirt, cut out the sleeves and wear this all the time under his nightshirt and also under his daily underwear, taking it off only when he bathes. This shirt rapidly fills with mercury and becomes a veritable pad, keeping the body continually in contact with the mercury.

Then, too, it is believed that by wearing this mercurialized shirt, the patient receives part of the mercury by inhalation. As he wears it continuously, night and day, some of the mercury is volatilized at body temperature, so that he has the additional advantage of mercury inhalation, with absorption through the skin. After a day or so, the odor, which at first may be very annoying, is hardly noticeable.

This shirt should be worn by the patient for at least six weeks. There is no objection to his taking a daily bath, but he is not permitted to wipe the mercury ointment from his chest and back. He should pat himself dry with a towel.

During the treatment with mercury, it is absolutely necessary to keep all fruit, fruit acids and buttermilk out of the patient's diet. If this precaution is strictly observed, with proper mouth hygiene, the gums will remain in a perfectly healthy condition. Equal parts of sodium bicarbonate and sodium chlorid make an excellent tooth-powder, which will also help to preserve the gums.

Occasionally, after six weeks of mercury rubbings, iodids are substituted for a month; then the mercury rubbings are resumed. I shall have no argument with those who prefer mercury injections to mercury rubbings. It is true that the rubbings are dirty, but in my hands this form of administration has been most effective.

REPORT OF CASES

In the following three cases, the intensive treatment was carried out. All showed stubborn infections, and a large amount of salvarsan was given, as will be seen from the records.

Case 3 (30).—H. D. H. manifested symptoms of secondary syphilis with spinal fluid involvement. The blood Wassermann reaction was positive. Treatment was begun, March 14, 1914. The patient received fourteen full doses of 0.6 gm. of salvarsan during a period of nine months, after which he showed a negative spinal fluid. Later he received two additional salvarsan injections. Since that time he has maintained a negative spinal fluid reaction without further treatment. Examinations were made, Nov. 10, 1914, Sept. 24, 1915, and May 18, 1917.

Case 3 (291).—C. G. manifested symptoms of secondary syphilis with spinal fluid involvement. The blood Wassermann reaction was positive. Treatment was begun, Feb. 3, 1913. This patient received twenty-nine doses of salvarsan during a period of three years and one month. He was one of the first treated by the intensive method, and mercury rubbings were used in conjunction with the salvarsan. He showed a negative spinal fluid reaction in January, 1916. One year later, January, 1917, without further treatment, he still had a negative reaction.

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[4] Sachs, Bernard: Truth and Intraspinal Injections in Treatment of Syphilis of Nervous System, The Journal A. M. A., Sept. 1, 1917, p. 681.

[5] Gilpin, S. F., and Earley, T. B.: Drainage of Cerebrospinal fluid as a Factor in the Treatment of Nervous Syphilis, The Journal A. M. A., Jan. 22, 1916, pp. 260-262.

Case 4 (32).—G. K. L. manifested symptoms of secondary syphilis with spinal fluid involvement. The blood Wassermann reaction was positive. This case is most interesting, as the patient was over 50 years of age when he contracted the infection, and the diagnosis was delayed until he was in the full secondary stage. Treatment was begun, March 29, 1912. During a period of two years and seven months, he received twenty-two injections of salvarsan, together with the mercury rubbings. A negative spinal fluid test was obtained, Oct. 9, 1914. He maintained a negative serum reaction until almost one year later, Aug. 10, 1915. It is now three years since he has taken any treatment, and he writes me that he is in the best of health.

In the following three cases, spinal drainage was added to the intensive form of treatment.

Case 5 (135).—E. A. presented evidence of tabes with spinal fluid involvement. He was not aware of the spinal fluid involvement. He was feeling perfectly well. Treatment was begun, June 28, 1915. Spinal fluid examination revealed 122 cells per cubic millimeter, globulin test positive, and Wassermann reaction positive. He received five injections of 0.6 gm. salvarsan, followed by a spinal drainage. Then for three months mercury rubbings were employed. Following this, he received another five injections of salvarsan, with the same dosage, and another spinal drainage. Examination of the spinal fluid revealed 10 cells per cubic millimeter, the globulin test negative and the Wassermann reaction negative.

It took just seven and a half months of this intensive treatment, comprising ten full doses of salvarsan, with continuous mercury rubbings, to bring about the serologic change. The treatment was continued another year, ten more injections of salvarsan being given. The examination of the spinal fluid, Jan. 29, 1917, revealed 5 cells per cubic millimeter, the globulin test negative and the Wassermann reaction negative. In all, the patient received twenty doses of salvarsan. The spinal fluid Wassermann reaction was negative in six months, but the treatment was continued twelve months longer.

Case 6 (38).—R. S. presented evidences of gumma of the testicle with spinal fluid involvement. The blood Wassermann reaction was positive. Examination of the spinal fluid revealed 30 cells per cubic millimeter, the globulin test positive and the Wassermann reaction positive. Treatment was begun, Nov. 28, 1916. The patient received five doses of salvarsan, of 0.6 gm. each, after which a spinal drainage was performed. Examination revealed no marked change in the spinal fluid. Then he had five months of the mercury rubbings, and another five doses of salvarsan, with the same dosage. This was followed by a spinal drainage. Examination of the fluid at this time revealed 3 cells per cubic millimeter, the globulin test negative and the Wassermann reaction negative. The Wassermann test made on the blood at this time was also negative.

The patient showed a negative condition, and it took just ten doses of salvarsan and the mercury rubbings to bring about the change of the spinal fluid after six months of treatment. He is still under treatment.

Case 7 (121).—L. W. K. presented evidences of tabes with spinal fluid involvement. The blood Wassermann reaction was negative. The spinal fluid examination revealed 68 cells per cubic millimeter, the globulin test positive and the Wassermann reaction positive. Treatment was begun, Nov. 15, 1916. The patient received five doses of salvarsan, of 0.6 gm. each, followed by a spinal drainage, which revealed no marked change, and four months of mercury rubbings. Then he was given another five doses of salvarsan and another spinal drainage. Examination of the spinal fluid at this time revealed 4 cells per cubic millimeter, the globulin test negative and the Wassermann reaction negative.

In six months, this patient obtained a complete negative condition of the spinal fluid after ten doses of salvarsan, together with mercury rubbings. He, also, is still under treatment.

It is my purpose to give in a future paper a detailed account of all cases, showing the advantage of the intensive use of salvarsan and spinal drainage over the simple intensive form of treatment.

CONCLUSION

In cerebrospinal syphilis the ideal method of prophylaxis consists in attacking the disease during the primary stage. If correct diagnosis is made and energetic treatment instituted at this period, there should be no further signs of the infection, and subarachnoid involvement would be unheard of. The general aim in treatment, especially among otologists, laryngologists and ophthalmologists, seems to be the healing of the superficial lesions only.

Lumbar puncture, with negative spinal fluid findings, is demanded in every case as final evidence of cure, no matter how energetically the treatment has been carried out.

As a check on possible future complications involving the nervous system, lumbar puncture, with spinal fluid examinations, is demanded in every patient who presents himself for treatment after the primary period.

In view of results of my experience, extending over a year, with intensive salvarsan treatment and mercury rubbings, with spinal drainage, it is my belief that these constitute the most effective mode of treatment, at the same time causing the least danger to the patient.

30 North Michigan Avenue.

AN EXPERIMENTAL STUDY OF SURGICAL SHOCK *

PRELIMINARY REPORT

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"Shock," which we arbitrarily define as a reduction of the arterial pressure to or below 50 mm. of mercury, together with the other usual signs of that condition, has been produced in the dog by (1) exposure and manipulation of the abdominal viscera; (2) a two hour partial occlusion of the inferior vena cava[1]; (3) partial occlusion of the thoracic aorta, lasting two hours; (4) twenty minute intravenous injections of 1:1,000 epinephrin,[2] and (5) the injection into the liver, via the splenic vein, of a suspension of lycopodium spores. Arterial pressure, venous pressure, jugular and portal (in a few experiments), and vasomotor tone have been followed. For the determination of vasomotor tone, a modification of the method used by Bartlett[3] has been employed: From time to time the rate of the flow is determined of salt solution under constant pressure, one high enough to minimize the effects of changing venous and collateral pressures, through a part of the

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* From the Physiological Laboratory of the Washington University Medical School.

* Undertaken as a part of the cooperative investigation started by the Committee on Physiology of the National Research Council, and participated in by the entire staff of the Department of Physiology.

[1] Janeway and Jackson: Tr. Soc. Exper. Biol. and Med., 1915, **12**, 193.

[2] Report of British Committee: Brit. Med. Jour., 1917, **1**, 381.

[3] Bartlett: Jour. Exper. Med., 1912, **15**, 415.

circulatory system for the time momentarily isolated for the purpose in such a way as not to injure the nerve supply of that part. These injections ("inflows") have been made in the main into the femoral artery; a few into a mesenteric and into the hepatic artery.

At the close of very protracted experiments, lasting, for example, six or more hours, the inflow rate may not be any faster than the normal initial inflow rate, and yet may show little or no mortal acceleration. The cause of this phenomenon is not yet clear. Presumably it is due in part, at least, to the development of a high state of local tone in the larger arteries, and possibly partakes of the nature of the postmortem contraction described by MacWilliam.[4]

SHOCK BY EXPOSURE OF THE ABDOMINAL VISCERA

From two to five hours of exposure and manipulation usually are necessary to reduce the pressure to 50 mm. of mercury. This does not include the time preceding the opening of the abdomen. The experiments usually occupy from about six to eleven hours each. The arterial pressure may be but little affected for several hours. During this time the vasomotor tone is usually somewhat increased, though often it is not outside of the normal range. The tone usually begins to decrease (inflow to increase) as the arterial pressure begins to fall, or to fall more rapidly, and it almost invariably passes below the normal level by the time the arterial pressure reaches shock level (50 mm. of mercury); that is to say, the inflow rate under the constant high injection pressure is then either normal or faster than normal.[5] As has been said, there often is very little further dilatation as the animal dies, though not infrequently there is then a slight constriction (asphyxial?) followed by a slight dilatation, indicating that the vasomotor center, even at the end of long experiments, may not be entirely unresponsive or inactive. On account of the peculiar reaction of the blood vessels at this time, however, it is impossible to form any definite opinion as to the extent of this terminal reserve. Portal venous pressure usually steadily falls throughout the experiment. The jugular pressure (in one experiment) showed no striking change.

THE PRESENCE OF THE ABDOMINAL VISCERA NOT ESSENTIAL FOR THE PRODUCTION OF SHOCK

After the removal of the abdominal viscera, shock develops in from three to five hours. If allowance is made for the greater duration of the preliminary operation, which, as a matter of fact, involves considerable manipulation of the viscera, the time required for the onset of shock certainly is no longer than in uneviscerated animals. The arterial pressure falls in very much the same way as in the uneviscerated. Vasomotor tone, at first, is markedly increased, but as a rule has fallen well below normal by the time shock pressure develops.

SYMPATHETICLESS DOGS

In two animals the abdominal sympathetic chain was removed, and the splanchnic nerves cut several weeks before the experiment. Shock pressure developed in one and one-half and three hours, respectively, after exposure and manipulation of the abdominal viscera. There were no changes in the rate of the femoral inflow. Shock apparently came on more rapidly in the absence of vasoconstrictor activity than in its presence, though it must be borne in mind that these animals were not so vigorous as are animals not operated on previously.

SHOCK BY PARTIAL OCCLUSION OF THE INFERIOR VENA CAVA

The observations of Janeway and Jackson were verified in almost every particular. In addition it was shown that during occlusion, vasomotor tone is usually markedly increased at first and then diminishes, so that before deocclusion (that is, before two hours have elapsed) it is always well below normal. If the arterial pressure improves with deocclusion, the tone may increase; but then it usually does not reach the normal level, and decreases again as the animal goes into shock. With death a further, usually considerable, dilatation occurs. During shock, therefore, vasomotor tone is usually well below normal but not lost. Portal venous pressure may be but very slightly increased by a grade of cava occlusion that eventually produces shock. For example, in one experiment the portal pressure was increased from 8 to only 10 mm. of mercury.

SHOCK BY OCCLUSION OF THE THORACIC AORTA

An obstruction, lasting two hours, of the thoracic aorta just beyond the arch that holds the peripheral arterial pressure at 30 or 40 mm. of mercury usually leads to shock, and usually within two hours after deocclusion, although, as after deocclusion of the vena cava, the arterial pressure after deocclusion of the aorta may for a time be almost as high as before occlusion. Vasomotor tone is markedly decreased during the period of compression, presumably as a result of the improved circulation in the brain. It increases beyond the normal on deocclusion, to decrease again as shock pressure develops, but does not pass below normal until the arterial pressure reaches, or has for some time been below, the shock level. With death, a further and very marked dilatation develops. In no other type of shock does the vasomotor mechanism possess as much residual terminal tone.[6] Portal venous pressure is below normal, excepting, perhaps, momentarily at the time of deocclusion. The jugular pressure does not change materially.

SHOCK BY EPINEPHRIN

Epinephrin administered as described by the British Committee[2] does not often lead to shock. As a rule those injections of epinephrin that do lead to shock cut down the inflow, through peripheral action, almost to zero for a considerable period. Contrary to recent statement,[7] epinephrin contracts the intestinal as well as the somatic arteries, and in these doses it may affect the large arteries (mesenteric, femoral) as well as the arterioles. The inflow method in these experiments gives no clue to the degree of activity of the vasomotor center other than to indicate that it is at least partially active to the end. Portal venous pressure is markedly increased at first, but rapidly falls, and may be below normal long before the animal goes into shock. In many instances death seems to be due to action of the epinephrin on the medullary centers and on the heart, and not to shock; for the heart or respiration may suddenly stop before shock, or even a particularly low arterial pressure, has developed.

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[4] MacWilliam: Proc. Roy. Soc., 1902, **70**, 109.

[5] Normal vasomotor tone in the presence of a subnormal arterial pressure would result in tissue anemia and pallor.

[6] More recent experiments indicate that the vasomotor centers hold up better in an animal anesthetized with morphin and ether than with ether alone. Inasmuch as morphinized animals require less ether, we are inclined to attribute the difference to the effect of the ether on the centers.

[7] Hoskins and Gunning: Am. Jour. Physiol., 1917, **43**, 399.

SHOCK BY PLUGGING THE PORTAL RADICLES IN THE LIVER

In order to determine whether a portal obstruction resembling in character that which a hepatic constriction would develop will lead to shock, graded injections of lycopodium spores were made into the vena gastrolienalis of the dog toward the liver. A dose that completely obstructs the portal circulation at first raises the portal pressure almost to the arterial pressure. But, presumably through the opening of collateral paths, the portal pressure soon falls until it becomes somewhat less than twice the normal, and this level is then maintained with little change until the animal begins to die. Until the collateral circulation is established, vasomotor tone is markedly increased, but then becomes practically normal. The arterial pressure is falling during this period, and soon arrives at the vicinity of 50 mm. of mercury. Some time later (two and one-half hours in one experiment), vasomotor tone begins to give way, the arterial pressure falls further, and the animal dies, whereupon the "inflow" undergoes a further and rapid increase. The anesthetic can never be completely removed, but toward the end only the lightest anesthesia is needed. Jugular pressure is not materially affected. Doses of lycopodium that do not produce complete obstruction and which, after the establishment of the collateral circulation, almost double the portal pressure, may be sustained indefinitely (four and one-half hours), and may only temporarily disturb the arterial pressure and vasomotor tone.

The rabbit, presumably on account of its longer intestine, is more susceptible to the lycopodium injections. A dose that almost doubled the portal pressure, however, was withstood perfectly by one animal for two hours.

SUMMARY AND COMMENT

Shock evidently may develop during or some time after markedly interfering with the blood supply to a considerable part of the body. It can be brought on by temporary partial obstruction of the inferior vena cava and of the thoracic aorta, by administration of doses of epinephrin that practically stop the circulation for long periods of time, and by the complete plugging of the portal capillaries. Failure of the vasomotor center in shock so produced is not the main cause of the condition, for at the time shock pressure first develops, vasomotor tone may be low, as in shock produced by occlusion of the vena cava; or it may be normal, or even above normal, as in shock produced by occlusion of the aorta. Still, it is important to bear in mind that a vasomotor center that holds the vessels merely to their normal caliber at a time when the arterial pressure is subnormal is not in normal condition. A normal center, under such circumstances, would hold the arteries to less than their normal size. But under any circumstances, the tone of the center falls below normal, if it is not already below normal, very shortly after shock pressure develops, as a result either of fatigue or of deficient blood supply to the center, both consequent, we believe, on the low blood pressure. The tone of the center is never entirely lost until the animal dies. Furthermore, sudden failure of the medullary vasomotor center in an otherwise normal animal apparently does not immediately lower the arterial pressure to the shock level. Increased portal pressure is not the cause of shock as produced by obstruction of the vena cava, or of the aorta, or by epinephrin; for the portal pressure may not be raised at all (as in occlusion of the aorta), or it may be raised only temporarily (as in shock by occlusion of the cava and by the injection of epinephrin). Furthermore, by the injection of lycopodium into the portal capillaries, the portal pressure can be raised as high as or even higher than it may be raised by the aforesaid methods, and yet may not lead to shock. In the dog, at least, obstruction of the portal capillaries to lead to shock must be practically complete; even the rabbit may withstand, almost with impunity, a marked increase in portal pressure.

We conclude, therefore, that by these procedures processes are started peripherally that eventually lead to shock. It is conceivable that shock that is brought on by exposure of the abdominal viscera also owes its origin to peripheral circulatory or nutritional disturbances of the same nature, but limited in this case to the organs maltreated. In the latter type of shock the portal pressure is not increased, and the vasomotor center has begun to fail, by the time the arterial pressure has fallen to 50 mm. of mercury. Before this pressure is reached, the arterioles may be constricted somewhat more than normally. Evidently, therefore, the question as to whether or not the arterioles are actively constricted in this type of shock depends largely on the pressure criterion of shock that is adopted. Indeed, it is possible that if shock pressure could have been induced more rapidly by this procedure, the center might have been found normally or even supernormally active at the time the animals went into shock. Complete vasomotor failure occurs only after death, though the tone residuum seems to be smaller in shock brought on by exposure than in other types of shock.

Obstruction of the portal area alone does not bring on shock as rapidly as an obstruction of the inferior vena cava of the same grade, if the level to which the portal pressure is raised by these procedures may be regarded as a criterion of the grade of obstruction. Presumably, therefore, contrary to Mann's[8] contention, the abdominal area is scarcely more potent in the production of shock than other parts of the body of comparable vascularity. This is indicated also by the fact that shock develops in eviscerated animals as rapidly as, indeed even more rapidly than, in normal animals.

We conclude, therefore, that the sole primary disturbance that leads to shock is not the retention of blood in the veins and capillaries of the splanchnic area, nor failure of the vasomotor center, two views that are quite prevalent at the present time. So far as we have gone, however, our results are not incompatible with the view, now apparently in the ascendency,[2] that the reduced pressure is to be attributed to a reduction in the effective volume of blood. Indeed, practically all of our results can be made to fit into this interpretation. But if this is the correct explanation of shock, our experiments thus far have thrown no light on the mechanism of blood depletion, or on the location of the displaced blood.

Of the five methods by which we have succeeded in producing shock, four, namely, obstruction of the cava and of the aorta, injection of epinephrin, and complete portal obstruction, certainly accomplish this by markedly reducing for some time the blood supply to a considerable part of the body; and it is not impossible that the fifth method (exposure of the intestine) works in a similar manner, the reduced blood supply here possibly being due to the processes associated with the onset of the first stages of inflammation.[9] One of these methods (obstruction of the aorta) undoubtedly leaves practically unaltered the functional capacity of the brain, the spinal cord, the heart, the vasomotor mechanism, etc. For these reasons we have developed the following working hypothesis:

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[8] Mann: Bull. Johns Hopkins Hospital, 1914, 25, 205.

Long lasting deficient blood supply starts a more or less extensive reaction, possibly of the nature of an inflammation. Engorgement of the small veins and capillaries,[10] and transudation of blood plasma are two of the early consequences of the reaction, and account for the diminution in the effective blood volume of shock. If acidosis occurs in shock, as reports from the front now seem to indicate, might not this acidosis also be the result of the deficient oxidation which deficient blood supply undoubtedly has in its train?

While it is possible so to induce shock (for example, by obstruction of the aorta) as to leave unreduced the functional capacity of many of the organs, we do not entirely agree with the view now current that in shock the heart, the vasomotor mechanism, etc., are always normally active. From the work we have thus far done, we have gained the impression that under the influence of the low blood pressure of shock the heart, while still capable of considerable exertion, has not the normal reserve. Neither does the vasomotor center respond as readily or as markedly to reflex stimulation; it may not be able to hold the arterioles to a normal caliber under a normal pressure, and seems to be set so as to maintain a new and low pressure level, so that in plethora produced by the intravenous injection of glucose,[11] for example, the increased output of the heart fails to raise the arterial pressure materially. We have evidence also that in shock the respiratory center is sluggish, and is working very close to the limit of viability.

Reports from the front[12] indicate that "the occurrence of shock in the wounded soldier when seen soon after the infliction of his wound is exceedingly rare"; it usually appears in patients giving "a history of great exposure to cold and to fatigue during the time which elapsed from the receipt of their injury, to their arrival in the hospital." Such views lend strength to the opinion that laboratory shock is not very different from shock as seen in war surgery. On the basis of such reports, we venture to suggest, as the causative factor of shock, reduced circulation brought about possibly through the action of pain stimuli, and of a certain amount of hemorrhage, on the vasoconstrictor mechanism, this reduced circulation starting in its train such events as follow, for instance, the injection of epinephrin, and the temporary partial occlusion of the aorta, or of the vena cava.

We have not yet succeeded, through stimulation of the vasoconstrictor center, either reflex or direct, in inducing in animals a peripheral constriction of the duration that is necessary, in our experience with other methods, to start the animal on the road to shock. Possibly this can be accomplished only in the conscious animal, and therefore cannot readily be done in the laboratory.

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[9] Erlanger: Paper read at Symposium on Shock, American Association for the advancement of Science, Washington, May 25, 1912. Henderson: Am. Jour. Physiol., 1917, **42**, 587.

[10] Bier: Virchows Arch. f. path. Anat., 1897, **144**, 256.

[11] Erlanger, Joseph, and Woodyatt, R. T.: Intravenous Glucose Injections in Shock, The Journal A. M. A., Oct. 27, 1917, p. 1410.

[12] Archibald and McLean: Ann. Surg., 1917, **66**, 280.

INTRASPINAL TREATMENT OF SYPHILIS OF THE CENTRAL NERVOUS SYSTEM

ANOTHER VIEW

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In a recent address, Sachs[1] throws discredit on the principles and practice of intraspinal injections in the treatment of syphilis of the central nervous system. It had been arranged that the other side of the subject should be presented by me during the session at which Dr. Sachs made his address, but orders into active military service prevented.

It is naturally impossible to refer to the records and notes on the cases under my care for the past eight years, so that this communication must necessarily be in general terms. In a recent article,[2] however, are published the details in the treatment of cases which represent examples of practically all stages of the disease. As I was naturally interested in the welfare of my patients, both the bedside and the laboratory features of each case were accurately recorded. To neglect either one is not in accord with the modern tendency in clinical medicine. To disregard the laboratory picture of the disease is at least reactionary, for most of our knowledge of the action of drugs has been the result of laboratory investigation. In syphilis, the laboratory evidences of disease are of paramount importance, and changes in them give us a valuable measure of the efficacy of our therapeutic measures. In them also the personal element in measuring change is reduced to a minimum.

In considering the treatment of syphilis of the central nervous system, it is not advisable to throw all the various forms of the disease into one class and have a hard and fixed method of procedure for all. It is always well to separate, as far as possible, the symptoms that are the result of active disease from those that are the result of scars. Obviously, one does not expect to restore scarred nerve tracts or centers. The elimination of active syphilitic foci and the arrest of a progressive degeneration are the objects of our therapeutic efforts.

In the large majority of the tabetics in whom the Wassermann reaction was rendered negative in the blood and spinal fluid, there has been no progressive downward course as determined in periodic clinical examination. On the other hand, in those tabetics in whom it was impossible to influence appreciably the abnormal laboratory findings, the disease was often progressive. The cerebrospinal fluid from these resistant cases often showed a gold curve of the paretic type, and probably the persistence of the Wassermann reaction was due to the paretic nature of the disease. It is my experience, in common with most other workers, that our therapeutic efforts in paresis lead to little more than an increase in the number and length of the remissions. The disease usually terminates fatally. The period of useful life, however, seems to be lengthened, and the period of hospital confinement shortened.

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[1] Sachs, Bernard: Truth About Intraspinal Injections in Treatment of Syphilis of Nervous System, The Journal A. M. A., Sept. 1, 1917, p. 681.

[2] Swift, H. F.: Response in Treatment of Syphilis of Central Nervous System, Am. Jour. Syph., 1917, **1**, 524.

In considering intraspinal treatment, it is well to differentiate sharply between the injection of salvarsan or neosalvarsan in amounts or concentrations that are injurious to the spinal cord, and the injection of serum, perhaps reinforced with a fraction of a milligram of salvarsan, which is practically never followed by any bladder or rectal disturbance. Although such serum contains only minute quantities of salvarsan, the fact that it is definitely spirocheticidal has been established by several workers. I have shown that the intraspinal injection of normal serum is at times followed by a diminution in pleocytosis and in the strength of the Wassermann reaction. In some cases that were stationary under this form of treatment, there was a further improvement when "autosalvarsanized serum" was substituted for normal serum. Hence we have two favorable factors, namely, normal serum and spirocheticidal substance, at work as the result of the injection of a serum which does not injure the delicate central nervous tissues.

So far as I am aware, nothing has been discovered in the recent work on the anatomy of the subarachnoid space and the physiology of the cerebrospinal fluid that is in any way contradictory to the principle of subarachnoid injection of therapeutic agents. While there has been an occasional report of the finding of arsenic in the spinal fluid after the intravenous administration of salvarsan, by far the majority of investigations have yielded negative results. Therefore, we are justified in concluding that the choroid plexus and the capillaries are usually effective barriers to the passage of arsenic into the cerebrospinal fluid.

In Weed's work on the formation and elimination of cerebrospinal fluid, even though he proved that the direction of the flow was outward from the perineuronal spaces, he did not prove that there was not a free circulation of the fluid. Blackfan and Dandy showed that, after intraspinal injections of finely divided carbon, there was a rapid distribution of the particles throughout the subarachnoid space. They showed also that phenolsulphonephthalein injected intraspinally was demonstrable in the fluid obtained a few minutes later from the ventricles, and that the same dyes could be quickly detected likewise in lumbar puncture fluid after injection into the lateral ventricles. From this evidence we should expect a fairly rapid distribution throughout the subarachnoid space of serum injected intraspinally.

The statement attributed by Dr. Sachs to Amoss, that the virus within the brain and spinal cord in poliomyelitis cannot be reached by intraspinal treatment alone, does not invalidate the principle of intraspinal injection in either syphilis or poliomyelitis.[3] It simply shows that in such diseases it may be well to attack the pathologic condition both through the blood stream and through the cerebrospinal fluid.

In fact, I never contended that intraspinal treatment *alone* was the best or the ideal treatment of syphilis of the central nervous system. The method was advocated only as an addition to other therapeutic measures. In my experimental work, it was necessary to eliminate all other forms of treatment in order to demonstrate that this form, of itself, was of decided value. This I feel I have demonstrated. The question is not one of intraspinal versus intravenous treatment, but of the value of the two methods combined. I have seen patients that did not respond to the intensive general treatment show improvement when intraspinal injections were added to the general treatment. I have also seen patients that showed only moderate improvement under intraspinal treatment alone improve more rapidly when intravenous treatment was added.

Intraspinal injections are not advisable in all cases, because not infrequently general treatment alone is sufficient. But when the general treatment is shown to be only moderately satisfactory, the addition of intraspinal injections is often of decided value.

Furthermore, I do not pretend that the present method is the final one. Doubtless, we may look forward to the time when we shall have drugs that are more efficient than salvarsan when applied both intravenously and intraspinally; but until that time has arrived, we are both obligated to and justified in continuing the use of procedures of determined therapeutic value.

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[3] In fact, I am not aware that Amoss has published such an exclusive or dogmatic statement. The reference would appear really to be to the combined intraspinal and intravenous serum treatment of poliomyelitis. Since epidemic poliomyelitis is a systemic as well as a special nervous infection, the combined treatment is advocated, not because the intraspinal injections are incapable of reaching all parts of the nervous organs, but because it is desirable to generalize the distribution of the immune serum throughout the body in the shortest space of time.

PHYSICALLY HANDICAPPED CHILDREN

RECOMMENDATIONS FOR OUTDOOR, FRESH-AIR AND OPEN-WINDOW CLASSES *

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The beneficial results obtained through open-air treatment of respiratory diseases, particularly pulmonary tuberculosis, have influenced educational hygienists, as well as physicians, to adopt similar methods for the care and treatment of other disabilities common among schoolchildren.

Among the 800,000 children attending the New York City public schools there are hundreds of physically handicapped children, including those affected with active pulmonary tuberculosis, and with bone, skin and glandular tuberculosis. There are also many pretuberculous, anemic and crippled children, and cardiac cases. As these children cannot attend the regular classes, provision must be made for their comfort, health and progress in school by some process of segregating them into special classes, of providing special classroom and personal equipment, and a relaxed curriculum.

Because of the varied types of physical defects, and of the different kinds of treatment necessary, these children cannot be grouped in any one type of classroom. Since this is true, we believe in the segregation of groups of physically handicapped or subnormal children, according to the type of case, into (1) outdoor classes, (2) fresh-air classes, and (3) open-window classes, as outlined in the accompanying table. A system of segregation which partly embodies the recommendation contained in this article is at present in operation in the public schools of New York City.

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OUTDOOR CLASSES

All cases of active pulmonary tuberculosis should be placed in classrooms of this type. A distinction should be made, however, between cases of active pulmonary tuberculosis and all other types of active tuberculosis.

Classrooms for children suffering from active pulmonary tuberculosis should be located on ferry boats, in parks, on piers, on hospital roofs, etc., but never in school buildings. In addition to the outdoor classrooms, provision should be made for a heated indoor lunch room on the same floor. When hospital roofs are utilized, stair climbing should be eliminated, through the use of an elevator. These classes are situated outdoors, and the outdoor temperature and adverse weather conditions may be partly regulated by movable glass wind and storm shields, which permit the passage of sunlight. Under the systems in use at the present time, canvas curtains and other cloth materials are used for wind shields. These are unhygienic from several points of view. They do not transmit sunlight, or prevent drafts, and they become dusty from prolonged use.

RECOMMENDATIONS FOR OUTDOOR, FRESH-AIR AND OPEN-WINDOW CLASSES

Type of Classroom	Special Groups	Type of Case	Temperature	Type of Structure				Type of Room Equipment	Type of Personal Equipment
				Structure	Location	Ventilation	Heating		
I Outdoor	1	Pulmonary tuberculosis (active)	Outdoor temperature regulated by glass storm shields	Outdoor room; no walls; movable glass wind and storm shields; also a warm indoor lunch room	On ferry boats, piers, hospital roofs, in parks, etc., but not in public schools; stair-climbing to be avoided	Direct	No artificial heat	A specially constructed adjustable movable chair resembling a Morris chair with desk attachment, rendering but one furniture equipment necessary for sitting and sleeping purposes; this is an evident economy; at present, desks, seats and cots are used	Wind-proof outer garment, with hood attachment—an outfit which may be easily washed so as to be sanitary Foot covering—Sitting out canvas-covered knee boots with felt insoles Army blankets—For use on very cold days, or when sleeping Bloomers — For additional warmth, if necessary, the girls wear bloomers under their skirts Sweaters, coats, caps and mittens are provided by the children, since these are articles of clothing commonly in use by all
II Fresh-air	1	The pretuberculous, i. e.: (1) Children exposed daily to tuberculosis in their homes (2) The so-called malnutrition and anemic type (3) Gland and skin tuberculosis	Not higher than 50 F.	Indoor room; specially constructed pivoted windows, so as to admit as much fresh air as possible without drafts	Corner room southern exposure, not higher than one flight	Direct	1. Artificial heat	Same as outdoor classroom	Same equipment as outdoor classroom
	2	Pulmonary tuberculosis (arrested)					2. Artificial heat		
III Open-window	1	Normal children attending regular classes	From 50-60 F.	Open window with specially constructed window ventilators	1. Any floor	1. Direct	1. Artificial heat	1. Regular classroom equipment	Sweaters, coats, leggings, mittens, caps, and bloomers for the girls
	2	Subnormal children, i.e.: (1) Children discharged from fresh-air classes (2) Children predisposed to respiratory diseases other than tuberculosis (3) Possible cardiac cases: i.e., doubtful murmurs, mainly functional (4) Mild chorea cases (5) Selected organic cardiac cases			2. Any floor	2. Direct	2. Artificial heat	2. Regular classroom equipment	
	3	Cases of organic cardiac disease in which further school segregation and prophylactic care are indicated			3. Not more than one flight	3. Direct	3. Artificial heat	3. Special equipment as in fresh-air class	
	4	Classes for cripples: A. (1) Cripples, nontuberculous, poliomyelitis cases, etc. (2) Cardiac cases in which school transportation is indicated B. Cripples; bone tuberculosis of all types			4. Not more than one flight	4. Direct	4. Artificial heat	4. Special adjustable equipment	

Since body heat must be provided through the child's own activities, not only should there be sufficient space for classroom activities and exercises through the use of movable furnishings, but the personal equipment of the child should permit unhampered activity. For these reasons, movable chairs should replace fixed desks and seats. A specially constructed chair, now in process of construction, is recommended. It resembles a steamer chair or Morris chair with a desk attachment. It is adjustable, and furthermore, it can be used for sleeping purposes, rendering necessary only one set of classroom furnishings. This arrangement is a distinct advantage to the physical well-being of the child, as well as an economical provision. In the planning of classroom equipment, it is essential to take into account the need of a period for rest or sleep immediately after the noonday meal, a health measure which prominent specialists recommend for physically handicapped children, such as those suffering from carditis and tuberculosis. A careful consideration of the dietary of the physically handicapped child, both at school and at home, is of prime importance, and necessitates home visiting on the part of the teacher and the school nurse.

For the personal equipment, certain essential garments and coverings are recommended. This includes a wind-proof outer garment with hood attachment, an outfit easily washed, and therefore sanitary. Over the shoes a foot covering consisting of sitting-out canvas-covered felt knee boots with felt insoles is worn. These are warm and well ventilated, in contrast to the rubber arctics sometimes worn, which make the feet cold and damp by causing excessive perspiration.

An army blanket should be used on very cold days, or when the child is sleeping. It is hygienic because it is easily cleaned. The sleeping bag now commonly in use limits the physical activity of the child, and is a menace, because it rapidly becomes unhygienic and hazardous from the standpoint of dust, vermin and contagion, and, in addition, is difficult to clean. Furthermore, this cumbersome, immobilizing equipment is a real danger during fire drills and other emergencies.

Bloomers should be provided for additional warmth if necessary, to be worn under the girls' skirts. These may be made in the sewing department of the school. Sweaters, coats, caps and mittens should be provided by the children, since these are articles of clothing commonly in use by all.

It is evident that this type of personal equipment furnishes sufficient warmth, even on the coldest days, and allows the child opportunity for unhampered activity and physical training, besides being a great asset in times of fire drill and other emergencies.

FRESH-AIR CLASSES

Two special groups of physically handicapped children are included under this classification. The first group includes the pretuberculous children, that is to say, those exposed daily to tuberculosis in their homes, those suffering from malnutrition or anemia, and those suffering from gland and skin tuberculosis. The second group consists of children in an arrested stage of pulmonary tuberculosis.

The fresh-air classroom should be an indoor room located not higher than one flight, in order to eliminate excessive climbing of stairs for physically handicapped children. Preferably, it should be a corner room with a southern exposure, provided with specially constructed pivoted windows, to admit as much fresh air as possible without draft. Artificial heat should be available, but care should be taken to prevent the temperature from exceeding 50 F. The same type of classroom and of personal equipment recommended for use in the outdoor classrooms should be used in the fresh-air classrooms. A lighter weight personal outfit may be used, because of the higher temperature of the rooms. Similar methods should be observed in regulating the diet and periods of rest for children in these classes.

OPEN-WINDOW CLASSES

Four special groups are included in this classification. The first is made up of the normal children attending regular classes. The second includes physically subnormal children, those discharged from fresh-air classes, those who are predisposed to respiratory diseases other than tuberculosis, those who display possible cardiac symptoms, such as doubtful murmurs, mainly functional, those showing mild symptoms of chorea, and selected children showing symptoms of organic cardiac disease. The third group consists of the cardiac patients who require further school segregation and prophylactic care. The fourth group comprises the crippled children. To this group belong the nontuberculous cripples, that is to say, those suffering from poliomyelitis, scoliosis, spastic paralysis, congenital malformation, amputations, progressive muscular dystrophy, etc. It also includes children with cardiac diseases for whom transportation is indicated, as well as cripples suffering from bone tuberculosis of all types.

The open-window classroom requires no structural changes. The ventilation should be direct, fresh air being admitted through open windows equipped with specially constructed window ventilators, to prevent drafts. Under present methods, the open windows are not equipped with window ventilators, and the children are exposed to drafts. The temperature in the rooms should be maintained at a point between 50 and 60 F., by the use of artificial heat. The classrooms for crippled children and for those having marked chronic organic diseases should be located not higher than one flight up. The restriction need not apply to the location of open-window classes for normal and subnormal children designated in the accompanying table, in Groups 1 and 2 under the third section. There is also no need of special furnishings for these two groups. The crippled children and the cardiac patients needing special segregation, however, require adjustable school furniture carefully adapted to their physical disabilities.

It is the opinion of cardiac specialists that certain cardiac patients require rest in school, prone. Therefore, a chair of the type recommended for use in fresh-air classes, adaptable for both school work and sleeping purposes, should be used, rendering but one classroom equipment necessary.

Crippled children require a still more specialized type of adjustable furniture, because of the various kinds of mechanical appliances used in the treatment of their orthopedic defects. It is evident that the long iron leg brace, plaster hip spica and plaster jacket present definite problems of seating, which must be solved by the structural adjustment of the furniture. The furniture now in use for classes of crippled children in the New York City public schools solves these problems. Both desk and seat have a central floor support, instead of the side supports of regular furniture, and are fastened to the floor. This provision leaves ample floor space, both for the locomotion of crutch patients, and for full extension of rigid limbs of brace patients, when the latter are seated. Aisle spaces should not be less than twenty-four inches wide.

The desk top is so constructed that a variable plus or minus distance of great range may be instantly obtained to meet the special seating needs arising from the mechanical appliances worn by the crippled child.

The vertical adjustment is readily made by means of a hand screw on the central supports.

The seat is provided with an adjustable back, similar to that of a Morris chair, with a cane center to prevent undue pressure. This cane back is removable, so that all pressure on sensitive spines may be prevented. The front half of the chair seat is divided anteroposteriorly into adjustable sections, which may be lowered to various angles to meet the requirements of the various types of leg braces. The seat is pivoted, revolving on ball bearings in an arc of 180 degrees, to provide greater mobility and facility for the crippled child in sitting and standing. Additional accessories in seating for the comfort of the child include foot rests, foot braces and air cushions.

Each classroom for nontuberculous cripples is provided with a cot, a sleeping chair and a blanket for emergency use. Each classroom for children with bone tuberculosis is equipped with a cot or a sleeping chair and a blanket for each child to meet the orthopedists' recommendations of a sleeping period in school for this group.

Crippled children are provided with transportation by stage to school and to their homes.

When greater warmth is necessary, children in all open-window classes should be provided with sweaters, coats, leggings, mittens, caps and bloomers for the girls, in addition to their skirts. As these are articles of clothing in common use, no additional expense for personal equipment is needed. The personal equipment of the teacher should be similar in character to that worn by the children in the special class to which she has been assigned.

SUMMARY

1. The type of physical defect should be the basis for the segregation of groups of physically handicapped children in special types of classrooms, that is to say, outdoor, fresh-air and open-window classrooms.

2. The range of temperature is governed by the type of physical defect in each special group.

3. Glass wind and storm shields are recommended to admit light and regulate heat, replacing the canvas or wood protectors now in use. Specially constructed window ventilators should be installed in all open-window classes, to prevent drafts and to protect children seated near the open windows.

4. No classroom for physically handicapped children, with the exception of the kind mentioned in Groups 1 and 2, of the third section in the accompanying table, should be located higher than the second floor unless an elevator is available.

5. In outdoor and fresh-air classes, movable, adjustable chairs are recommended instead of fixed desks and seats. This equipment could then be used for sleeping, rendering but one set of classroom furnishings necessary. A movable equipment in outdoor and fresh-air classrooms has the following additional advantages: (*a*) Direct drafts on children are easily avoided. (*b*) Greater space for classroom activities and physical training is provided. (*c*) The children are permitted greater freedom. In classes for cripples, additional mobility is made possible through specially constructed desks and pivotal chairs.

6. The type of personal equipment should allow the greatest possible freedom for schoolroom activities and physical exercises, and should eliminate the danger arising from fire drills and other emergencies. It should also be sanitary, so as to be easily cleaned. The type of equipment commonly in use fulfils none of these requirements. Before a child is placed in a special classroom with lowered temperature, he should be provided with sufficient underwear and appropriate outer clothing, as well as storm equipment, so that he may not feel the effects of exposure when he leaves the classroom at the end of a school session.

THE MORTALITY FROM PELLAGRA IN THE UNITED STATES

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CHICAGO

By force of circumstances, greater attention is at present being directed toward dietary problems than ever before. The growing disproportion between a practically stationary income and an increasing cost of foodstuffs has resulted in considerable hardship during the past few years, and has brought with it an accentuation of diseases commonly associated with deficiencies in diet, such as pellagra and scurvy. Profound alterations in the labor market have led, furthermore, to a far-reaching migration from southern agricultural to the northern industrial centers. Under such circumstances it is appropriate at this time to discuss briefly the recent pellagra statistics, and to call attention to the widespread distribution of the disease in the United States.

TABLE 1.—PELLAGRA MORTALITY IN THE NORTH ATLANTIC STATES *

	Deaths	
	1915	1916
Maine	10	15
New Hampshire	5	10
Vermont	3	3
Massachusetts	26	37
Connecticut	1	1
Rhode Island	8	7
New York	12	27
Pennsylvania†	?	?
New Jersey	5	4

* Population, 29,246,000; deaths, 1915, 70; 1916, 104; mortality per hundred thousand population (excluding Pennsylvania), 1915, 0.33; 1916, 0.5.

† No statistics available.

TABLE 2.—DEATHS FROM PELLAGRA IN THE SOUTH ATLANTIC STATES *

	Deaths		Rate per 100,000 Pop.	
	1915	1916	1915	1916
Delaware	0	0	0	0
Maryland	15	3	1.1	0.2
District of Columbia	16	9	4.4	2.5
West Virginia†	?	?	?	?
Virginia	332	249	15.1	11.3
North Carolina	831	476	35.0	19.8
South Carolina	1,468	672	92.0	39.0
Georgia‡	2,012	958	70.0	32.8
Florida§	375	202	41.1	22.5

* Population, 13,343,000; deaths, 1915, 5,049; 1916, 2,524; mortality per hundred thousand population (excluding West Virginia), 1915, 42; 1916, [illegible].

† Deaths reported, but the total number not available to the state health office.

‡ No statistics collected in Georgia; the mortality given is estimated.

§ Statistics incomplete.

That the diet is of basic import, either as a contributing factor or as the etiologic agent in producing pellagra, has been generally accepted by observers, although it must be admitted that no one interpretation of this relation to the disease has been definitely accepted. The corn ration more or less prevalent in the pellagrous districts is not in itself responsible, although it may be one of a number of factors that tend to bring about a state of nutritive deficiency, since zein, the chief protein constituent of the corn, is the only one of the commonly used proteins that is definitely lacking in certain of the amino-acids. The more recent work of Goldberger and his associates has done much to confirm Funk's contention that the disease is due to a vitamin deficiency.

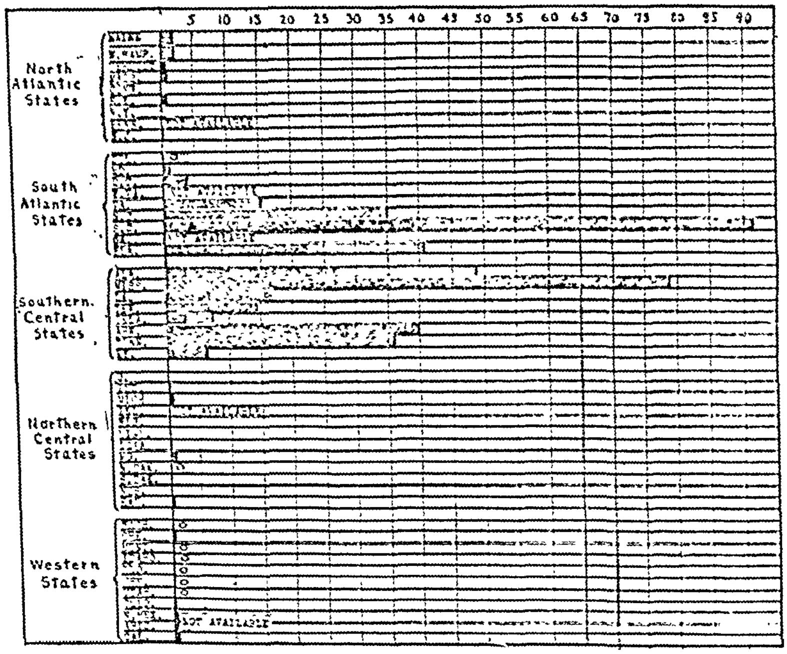

Fig. 1.—Graphic representation of pellagra mortality per hundred thousand population during 1915 and 1916. Shaded columns indicate mortality in 1915; black columns indicate mortality in 1916.

The possibility is not excluded that, instead of dealing with a deficiency, we have to do either with an intoxication from the absorption of toxic products originating in the intestinal tract and related to an altered flora (that such bacterial changes occur has been repeatedly demonstrated), or that a specific organism, as yet not isolated, causes the disease. The epidemiologic data collected by the Thompson-McFadden Commission and by Jobling in Nashville can be interpreted as lending support to the latter hypothesis.

The attention of the profession was directed to pellagra at a time when a rapid increase in the number of cases followed a period of financial stringency (1907-1908). This early period was probably followed by one in which the actual number of cases decreased, although the statistical evidence of this decrease was apparently negated by the increase in the number of cases that were correctly diagnosed. This period was followed by one of very definite and continuous increase in the mortality rate, until a maximum was reached in 1915, the number of recorded deaths for that year being well over 10,000.

In Tables 1-5 the states have been grouped and the pellagra mortality, as reported to the state health officers, has been collected; the graphic representation of the statistics is shown in Figure 1.

THE REDUCTION IN THE MORTALITY RATE

It is at once apparent from Tables 1-5 that a striking reduction in mortality took place during the year 1916, the total number of deaths recorded for 1915 being 10,663, while during 1916 only 6,289 were recorded in the state health offices. This reduction was of greatest extent in the South Atlantic group of states, where the mortality declined from 42 to 21 per hundred thousand population.

When the figures are examined on the basis of race (Table 6) it will be observed that a greater reduction occurred in the colored than in the white race.

INCREASE IN MORTALITY IN THE NORTH ATLANTIC STATES

While a decrease occurred in the chief pellagrous districts, it is rather interesting to observe that in the New England states the mortality, although still low, practically doubled during the year 1916, so that the death rate for Maine and Vermont, for instance, is almost as great as in some of the states directly bordering the pellagrous area.

THE STATISTICAL AND THE ACTUAL MORTALITY RATE

There is very little doubt that the diagnosis of pellagra submitted on the death certificates to the various state health offices is almost invariably correct. The statistics err only in the omission of a vast number of deaths actually due to pellagra but improperly entered on the records as deaths due to other causes. It is very probable that the actual mortality from the disease is from 50 to 75 per cent. greater than is indicated in the statistics presented. This condition is brought about by the following causes: Pellagra, contrary to the usual opinion, is a relatively chronic disease in the white race, and the death, when it does take place, is almost invariably attributed to the diarrhea or its resulting inanition. Symptomatic diagnoses, such as

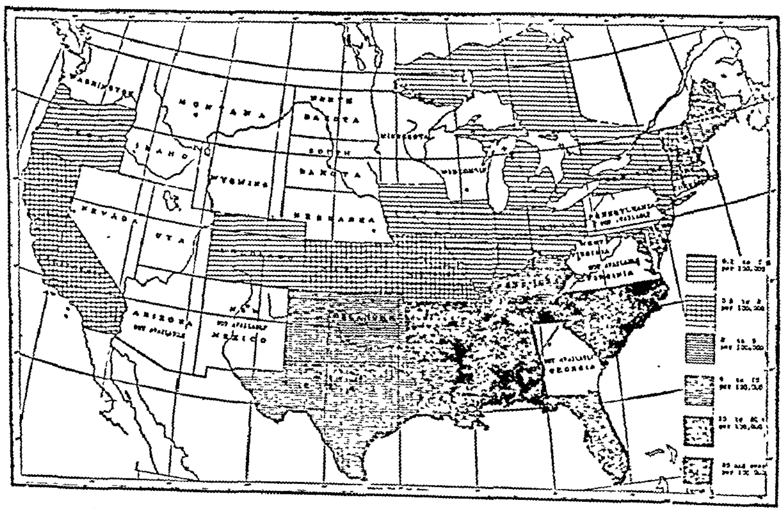

Fig. 2.—Pellagra mortality of the white race in the United States.

dysentery, tuberculosis of the intestine, and chronic gastro-enteritis, are found commonly recorded for deaths due to pellagra, as well as symptomatic diagnoses referable to the changes resulting in the central nervous system. We have also to consider that a certain number of deaths recognized by the physician as due to pellagra are not entered by that name on the death certificate because of the prejudice on the part of the laity to a diagnosis involving to a certain extent the social status of the family.

THE MORBIDITY FROM PELLAGRA

Health authorities in the Southern States estimate that approximately 0.5 per cent. of the population is frankly pellagrous. With a population of about 32,500,000 in the pellagrous area, this would mean that there are some 165,000 pellagrins.

It has been estimated by others that for each death from pellagra there are at least fifteen living patients. This ratio applied to the mortality figures for 1915 would result in an estimated total of 157,000. Both of these estimates are undoubtedly greatly below the actual morbidity.

SUMMARY

While the accompanying map (Fig. 2), showing the distribution of the pellagra mortality for the white race during 1916, illustrates that pellagra is still predominantly a disease of the Southern States, nevertheless, deaths occur with considerable uniformity in all states with the exception of those in the northwest part of the country. In Canada, deaths from pellagra have been recorded[1] only in the Province of Ontario, although undoubtedly isolated cases occur in other parts of the Dominion.

TABLE 3.—NUMBER OF DEATHS FROM PELLAGRA IN THE SOUTH CENTRAL STATES *

	Deaths		Rate per 100,000 Pop.	
	1915	1916	1915	1916
Alabama	1,109	677	48.4	26.6
Mississippi	1,535	840	79.0	43.0
Louisiana	301	295	16.6	16.4
Texas	661	452	14.5	10.0
Oklahoma	152	71	7.2	3.2
Arkansas†	680	500	40.0	28.0
Tennessee	830	607	36.0	26.0
Kentucky	150	120	6.5	5.0

* Population, 19,270,000; deaths, 1915, 5,418; 1916, 3,562; mortality per hundred thousand population, 1915, 28; 1916, 19.

† The mortality for Arkansas is estimated. In 1915, when about 70 per cent. of the deaths were recorded, 477 deaths were reported due to pellagra. The 1916 statistics are not as yet available, and have been estimated as having decreased in the same ratio as those of Tennessee.

TABLE 4.—SUMMARY OF PELLAGRA MORTALITY IN THE NORTH CENTRAL STATES *

	Deaths	
	1915	1916
Ohio	5	6
Indiana	7	4
Michigan	12	4
Illinois†	?	?
Wisconsin	1	0
Minnesota	0	1
Iowa	5	4
Missouri	42	39
North Dakota	0	0
South Dakota	1	0
Nebraska†	?	?
Kansas	21	10

* Population, 32,315,000; deaths, 1915, 94; 1916, 68; mortality per hundred thousand population (excluding Illinois and Nebraska), 1915, 0.37; 1916, 0.27.

† Statistics from Illinois and Nebraska not available.

The maximum mortality was evidently reached during 1915; since then the number of deaths has diminished. In the colored race the decrease in the mortality has been proportionately greater than in the white race. With the migration to the Northern States of large numbers of colored people, it is very probable that a considerable number of pellagrous individuals will have been included.

TABLE 5.—STATISTICS COVERING DEATHS DUE TO PELLAGRA IN THE WESTERN STATES *

	Deaths	
	1915	1916
Oregon	4	3
California	28	25
Colorado	0	3
Washington, Idaho, Utah, Wyoming, Nevada, Montana	0	0
New Mexico, Arizona†	?	?

* Population, 8,694,000; deaths, 1915, 32; 1916, 31; mortality per hundred thousand population (excluding New Mexico and Arizona), 1915, 0.4; 1916, 0.4.

† Deaths from pellagra occur in these states, but statistics are not available.

TABLE 6.—STATISTICAL COMPARISON OF THE MORTALITY FROM PELLAGRA DURING 1915-1916 IN THE WHITE AND COLORED RACES *

	White		Colored	
	1915	1916	1915	1916
Oklahoma	6.1	2.6	14.9	6.6
Tennessee	26.0	20.0	75.0	49.0
Florida	19.0	13.2	77.0	38.0
North Carolina	24.0	14.6	58.0	30.0
District of Columbia	1.9	3.0	11.0	1.0
Alabama	28.0	19.0	74.0	44.0
Louisiana	5.0	7.0	32.0	28.0
Maryland	0.8	0.17	2.6	0.4
Mississippi	32.0	19.0	116.0	61.0
Kentucky	6.3	5.3	5.7	2.6
Average	14.9	10.3	46.6	26.0

* Statistics based on the mortality per hundred thousand population.

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[1] Pinault, L. G.: Jour. Can. Med. Assn., 1916, **6**, 228. Rolph, F. W.: Ibid., p. 323.

Regulations Governing the Dispensary Treatment of Tuberculosis.—The department of health of New York City has recently amended the sanitary code to provide that "no public dispensary where communicable diseases are treated or diagnosed shall be conducted or maintained otherwise than in accordance with the regulations of the Board of Health." This amendment includes ten regulations requiring that the examination and treatment of persons affected with pulmonary tuberculosis be conducted in a special dispensary or department of a dispensary; that proper microscopic examinations of sputum shall be made; that the maximum number of patients examined shall not exceed five an hour; that the necessary medical and nursing staff shall be on duty on all days set apart for the reception of patients; that a proper follow-up system be maintained, that circulars of instruction and advice shall be furnished, and that all applicants be examined at the time of their first visit, irrespective of their place of residence; that an adequate supply of approved sputum receptacles be provided and the use of cuspidors be prohibited; that complete and adequate records be kept of every case of pulmonary tuberculosis examined, such records not to be open to inspection by the public other than the representatives of the Department of Health of the City of New York and such persons as may be authorized by the law to inspect such records; and that every department of a dispensary wherein persons are treated for pulmonary tuberculosis shall employ proper facilities for the examination and treatment of the nose and throat lesions.

ETIOLOGIC FACTORS IN GROSS LESIONS OF THE LARGE JOINTS

OBSERVATIONS FROM ONE THOUSAND ONE HUNDRED CONSECUTIVE NECROPSIES *

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The routine performance of a necropsy, generally speaking, does not include a section and an examination of the joints unless the clinical history or the external appearance of the joint happens to indicate the presence of arthritis. There was no departure from this rule at Ancon until Dr. L. B. Bates began the application of the Wassermann test. He soon noticed that a number of the laborers who responded in a positive manner to the test had associated with their clinical history an ill defined type of arthritic symptoms. This feature became so significant among the negro laborers that Dr. Walter Baetz,[1] then in charge of the negro medical service, made a clinical study of the acute arthritic conditions occurring in his service. In his report, in 1913, of 100 cases of acute arthritis among negro laborers in the Panama Canal Zone, he thus named the types according to the frequency of their etiologic factor; syphilitic arthritis, 63; gonorrheal arthritis, 28; undetermined arthritis, 6; dysenteric arthritis, 2, and tuberculous arthritis, 1.

The important position given to syphilis in this report was so surprising that it stimulated some interest in what might be found at necropsy. Since the report of Baetz, others have occasionally appeared which also indicate the importance of syphilis in this respect. A study of the joints in 200 necropsies in Berlin showed that after exclusion of the typical types of joint disease there still remained in this series 178 bodies without a typical type of arthritis which revealed macroscopically visible changes in the joints in at least 143 individuals.[2]

Various textbooks on clinical medicine and on pathology grant but small space to a discussion of syphilis and age respecting lesions in the joints. In the fullest account to which I have ready access[3] is the statement:

> Syphilitic affections of the joints make their appearance either at the time of the secondary eruptive stage or in the tertiary stage of the disease. In the secondary stage the affection takes the form of a serous synovitis, resembling that associated with acute articular rheumatism. In rare cases a like effusion takes place even in the later stages; but as a rule the tertiary syphilitic arthropathies are of a chronic kind, and are characterized by the formation of gummatous nodes and thickenings in the capsule, proliferation of the synovial membrane, and fibrillation and erosion of the cartilage. Syphilitic arthritis may occur as a primary affection of the joint, or may be due to the extension into it of specific inflammation from the periosteum or bone marrow.

Since so little could be found regarding the incidence of gross pathology in the joints, and especially regarding the possible relation of syphilis to joint lesions, it seemed desirable to follow the local clinical observations with some anatomic observations. It was arranged to do a Wassermann test in all cases with a grave prognosis, and in the event of no antemortem test, to apply it to the postmortem serum whenever it was in a satisfactory state for analysis. To the routine necropsy examination was added a section of the large joints: the shoulders, hips and knees. Other joints were opened only when there was a clinical history or gross external evidence of disease in them or when extensive change was noted in the large joints mentioned.

It is common knowledge that a necropsy often reveals a lesion in the middle ears, accessory sinuses, tonsils, gallbladder, duodenum, appendix and the genito-urinary system that had not declared its presence, or had had its clinical picture obscured by the more important disease present at the time of death. With this fact in mind, it is to be expected that a joint might be the seat of a lesion which represents a remote sequel to a disease that may be little related to the disease causing death.

It is not the intention to include in this series of cases all those showing very small areas of degenerative change in the cartilages, such as flattening and change of color at the points of pressure, or effusions such as commonly occur in the joint cavities just as in other serous cavities in some chronic diseases. Only those joint changes are to be discussed which have offered a *well defined gross lesion* of the cartilages, bone or joint content. Since the inauguration of this method of examination, 1,100 necropsies have been performed. Less than 1 per cent. of these individuals were considered "arthritic suspects," yet 172 cases offered some significant type of a well defined gross lesion. It is quite impossible thoroughly to dissociate the various etiologic factors known to produce arthritis in the discussion of this series, since many of the individuals had a remote history or the present evidence of more than one possible etiology. As in many such studies, the matter resolves itself into the expression of a personal opinion; and after weighing the general findings, both clinical and pathologic, surrounding these cases, I am led to arrange them in the order given in Table 1.

TABLE 1.—ETIOLOGIC FACTORS IN ONE HUNDRED AND SEVENTY-TWO CASES OF ARTHRITIS

	Number of Cases
Syphilis	96
Arteriosclerosis	33
Gonococcus	10
Undetermined	10
Streptococcus	6
Staphylococcus	5
Tuberculosis	4
Pneumococcus	2
Meningococcus	2
Trauma	2
Pellagra (?)	1
Scurvy	1

A classification for the sake of convenience in further analysis is necessitated, and therefore the 172 cases have been arranged in three groups (Table 2). Group 1 includes all cases showing a degenerative type of lesion associated with a positive Wassermann test, or with supportive lesions of syphilis found at necropsy, or with the history of having been treated for syphilis. Group 2 includes only those showing a degenerative lesion associated with arteriosclerosis and not showing the presence of any other factor acute or chronic in type. Group 3 includes all well recognized types of arthritis and the undetermined acute types.

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* From the board of health laboratory.

[1] Baetz, Walter: One Hundred Cases of Acute Arthritis Among Negro Laborers on the Panama Canal Zone, The Journal A. M. A., April 5, 1913, p. 1065.

[2] Beitzke, H.: Ueber die sog. Arthritis deformans atrophica, Ztschr. f. klin. Med., 1913, 74, 215, cited in Current Comment, The Journal A. M. A., Sept. 6, 1913, p. 779.

[3] Ziegler, Ernst: A Text-Book of Special Pathological Anatomy, pp. 285, 286.

Practically all the bodies were of negroes or of negro mixtures. Nearly all were of persons who had been hard laborers, tradesmen on their feet all day, or domestic servants and laundresses. Of the cases listed under syphilis and arteriosclerosis (Groups 1 and 2), about 80 per cent. of the deaths had occurred as a result of chronic cardiovascular disease, renal disease or chronic disease of the central nervous system (many of the persons had been insane).

The Wassermann test on the blood was positive in sixty-six of the ninety-six cases in Group 1; in two additional cases there was a positive spinal fluid test, eight could not be tested, and in nineteen there was a negative response but a history of syphilis, and supportive lesions of the disease at necropsy. The various special tests for the spinal fluid were not applied to the cases in this series.

TABLE 2.—DISTRIBUTION OF ARTHRITIS CASES

Age, Years	Number of Necropsies Performed	Syphilis Associated: Group 1	Arterio-sclerosis: Group 2	All Other Types: Group 3
Less than 2..........	207	0	0	1
From 2 to 9......	40	0	0	1
From 10 to 19......	39	0	0	0
From 20 to 29......	312	15	1	14
From 30 to 39......	251	23	0	12
From 40 to 49......	132	30	9	6
From 50 to 59......	74	21	9	3
From 60 to 69......	35	6	10	5
From 70 to 79......	8	1	2	1
80 and over........	2	0	2	0
Totals........	1,100	96	33	43
Sex				
Males	792	77	23	27
Females	308	19	10	16
Totals........	1,100	96	33	43

Table 3 gives a list of some of the lesions found associated with the cases under Group 1 and believed to be "supportive lesions" of syphilis.

It is not considered important to discuss the cases in Group 3, since they were all well defined acute types that have already been indicated. Several of these cases, however, represent a secondary invasion by an acute factor of a joint already the seat of the chronic degenerative type of arthritis about to be described, and it is to be expected that such a joint, with its plates eroded and its nutrition below normal, would frequently favor the localization of an acute process.

The lesion found in the cases under Groups 1 and 2 were identical in character, and therefore the description of the lesion found in Group 1 will suffice.

LESION IN THE UNCOMPLICATED CHRONIC DEGENERATIVE TYPE OF ARTHRITIS

The knee, being the most common location of the process, is best suited to illustrate the lesion. The external examination of the joint seldom offered any sign of the change to be exposed by the disarticulation of the joint. The cavity was usually almost dry or partially filled with a straw colored, transparent, gelatinous material. The synovial membrane many times presented no visible change, but infrequently it was found thickened, red and granular, and more infrequently containing a polypoid growth with a little flaky material or perhaps some free pieces of cartilage floating in the scanty joint fluid. Adhesions spanning the joint cavity between the bone surfaces were almost never found. The most common and significant change to be found was located in the cartilages at the points of the greatest "occupational pressure." The cartilage of the patella, and the condyles of the femur and of the head of the tibia were in many instances almost destroyed; but the majority of the cases revealed a loss of substance in the cartilages only in those regions subjected to the greatest and longest continued pressure strain in the daily use of the joint. The buffer influence of the semilunar cartilages in most instances saved the tibia from extensive involvement; but the center of each condyle, the groove between the condyles at a little higher level, and the surface of the patella suffered such extensive losses of cartilage that comparatively large areas of bone were exposed. Many times this bony bed would be rough, red and cancellous in character, while at other times it was a polished, red surface. No pus or fibrin filled these exposed places, and granulations were seldom present. The patella appears to be the first to suffer, as a general rule; since, in what is considered to be the earliest stage of the process, the cartilage of this bone shows the most extensive softening, fibrillation and lemon color, and this condition is often present when the other bones show but scant involvement. The final stage of the lesion appears to be represented by those cases revealing complete absorption of the cartilages and exposure of large areas of bone at points corresponding to the pressure areas.

COMMENT

The character, position and size of the joint lesion strongly suggest a degenerative result and absorption rather than the local action of micro-organisms, although such a joint could well be expected to favor a secondary invasion by some pyogenic factor, since its devitalized condition and constant use would facilitate the localization.

It is believed that chronic vascular disease, such as syphilitic arteritis and arteriosclerosis, reduces nutrition to the joint plates, and that at the "pressure areas" nutrition is further reduced by the hard daily use of the joint, so that degeneration and absorption of the cartilages take place, finally resulting in the exposure of the bone, and being usually limited to the areas of greatest pressure. Many of the persons in this series from early life had been in the habit of carrying burdens on their heads. Frequently this load would be greater than the same person could have carried by hand. This no doubt materially increased the strain on the hips and knees, and may account for the great incidence of the knee lesions; although this joint, being a large one situated between two important epiphyses and subjected to the strain of long, large bone levers supplied by many groups of powerful muscles, is to be expected to reveal this type of lesion more than any other joint.

TABLE 3.—SUPPORTIVE LESIONS IN GROUP 1

	Number
Aortitis	63
Chronic aortic endocarditis........	21
Genital scars	17
Chronic osteitis	14
Scars in liver, spleen and kidneys........	14
Aneurysm	13
Cerebral hemorrhage and softening in young adults........	28
Chronic types of meningitis and focal areas of brain sclerosis......	10
Gummas	5
Chronic orchitis	5
Arteritis obliterans	4
Chronic leg ulcer	3
Iritis	2
Rectal ulcer (stricture)........	1

It appears reasonable to suppose that syphilis may be frequently an important preliminary factor in producing this type of joint lesion. The results in the vascular system of an untreated course of syphilis are today well known, and a glance at the ages of the persons comprising Group 1 of this series will reveal a large number of adults in the early decades of life, periods earlier than senile changes are to be expected, although the lesion present resembles such a change. The summary[4] of the year's work in this laboratory for the year 1916 showed that 3,947 negroes and mulattoes were examined by a Wassermann test and that 30 per cent. were positive. When it is recalled that the 1,100 cadavers in this series of necropsies were of unselected persons with regard to the test, and that ninety-six out of 172 joint cases could be placed in Group 1, the relation of syphilis to these degenerative lesions seems to be more than mere coincidence. Syphilis and arteriosclerosis are indicated as important preliminary factors in preparing the joint plates for the development of degenerative arthritis.

TABLE 4.—DISTRIBUTION OF JOINT LESIONS

Location	Syphilis Associated: Group 1	Arterio-sclerosis: Group 2	All Other Forms: Group 3
Right knee	90	33	28
Left knee	92	32	28
Right hip	17	7	6
Left hip	9	6	4
Right shoulder	17	10	4
Left shoulder	8	9	5
Right elbow	2	0	3
Left elbow	2	0	2
Right ankle	2	0	4
Left ankle	3	0	1
Right wrist	1	0	0
Left wrist	0	0	0
Spine	1	0	2
Digits	0	0	1

These degenerative changes in the joints may represent the remote results of what Baetz has named, in the secondary period of the disease, "syphilitic arthritis."

Certainly the gross pathologist, in the absence of arteriosclerosis, should look on this condition when present in the body of a young adult as suggestive of syphilis, and apply the laboratory tests for the disease.

SUMMARY

1. Gross lesions of arthritis were found in 15.6 per cent. of 1,100 consecutive necropsies, and less than 1 per cent. of those showing the lesions were considered "arthritic suspects."
2. All but two of the persons showing arthritis were hard working adults belonging chiefly to the negro race.
3. A chronic degenerative type of arthritis included 129 of the cases, while forty-three cases were well known acute types of arthritis or some ill defined acute and chronic types combined.
4. Chronic vascular disease (syphilis and arteriosclerosis) and employment at hard labor are considered important etiologic factors in the production of chronic degenerative arthritis.
5. The focal degenerative arthritis found at necropsy in young adults offers the gross pathologist, in my opinion, some additional presumptive evidence of syphilis, and the application of the laboratory tests for the disease is indicated.

MYOSITIS PURULENTA ACUTA CAUSED BY BACILLUS TYPHOSUS

REPORT OF A CASE *

MASANAKA TERADA, M.D.
TOKYŌ, JAPAN

The pyogenic property of the typhoid bacillus was long a topic of discussion by medical writers. At present, as the result of satisfactory evidence, many authors agree that the typhoid bacillus can cause the formation of pus in various organs, although cases of typhoid followed by myositis purulenta acuta caused by the typhoid bacillus are very rare. Lately I have observed a case of myositis purulenta acuta of the upper arm caused by the typhoid bacillus during the course of typhoid fever.

REPORT OF CASE

History.—A man, aged 34, who had enjoyed good health, was suddenly taken ill with chills and fever, the temperature reaching 40.2 C. (104.3 F.) at onset. The lips were dry and the tongue was coated with a thick white fur; the appetite was poor; there was retraction of the abdominal wall, but no tenderness. At first there was slight diarrhea, but later, constipation. The spleen became enlarged, and its edge was distinctly felt below the costal margin. In the liver and the kidney no changes were clinically noted. The pulse was strong and regular, ranging 100 or more, and the heart sounds were normal. There were no changes of the respiratory organs throughout the entire course save for the occurrence of epistaxis two or three times. There were no serious nervous manifestations at the beginning, but only persisting headache and slight pain in the lumbar region. Toward the end of the disease the patient was delirious. There were no changes in the kidney. The urine was almost transparent, weakly alkaline, with a specific gravity of 1.010 and no sugar or precipitate, but with a trace of protein. The diazoreaction was positive. Microscopically there were no abnormal constituents except a few leukocytes. There were no changes in the testicle, epididymis or prostatic gland.

A few days after the onset, the characteristic rose-red rashes appeared. Two weeks later the patient began to complain of pain in both the upper arms. This attack of pain was accompanied by chills and high fever, and a reddish swelling appeared on the postero-external side of the right upper arm, extending from the elbow to the lower margin of the deltoid muscle. Petechiae were present, but a thickened periosteum was not palpable. The symptoms of the left upper arm diminished in severity. A deep incision was made in the upper third of the right arm, and a small quantity of seropurulent fluid was evacuated. Later a few blebs formed around the incision.

Bacteriologic Examination.—A few drops of the patient's blood were cultivated in bile broth and ordinary broth; both mediums showed uniform cloudiness. The growth, when cultivated on various mediums, showed the following characteristics:

Agar: After incubation for twenty-four hours at 37 C. (98.6 F.), small, circular, thin, bluish-gray, transparent colonies were seen which remained always thin.

Gelatin: All the colonies presented a characteristic appearance. After incubation at 37 C. for twenty-four hours, small, round colonies, always thin and transparent, appeared. The edge of each colony became indented and sinuous, and at the same time ridges extended from them into the center, which became thicker than the margins. The colonies developing in the depth of the gelatin and sometimes even those on the surface had quite a different appearance. They were round and opaque, and were about the size of a pinhead.

Stab Culture: After incubation for twenty-four hours at 37 C., along the line of the stab, small, round, yellowish-white and confluent colonies appeared, while on the surface there were thin, transparent and widespread confluent colonies.

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[4] Russell, F. F.: Summary and Discussion of the Work Performed in the Board of Health Laboratory During the Year 1916, Proc. Med. Assn. Isth. Canal Zone, **10**, Part 1.

* From the microbiologic department of the Tokyo Charity Hospital-Medical College.

Milk: The bacillus grew abundantly without coagulating the milk.

Broth and Peptone Medium: The growth in these mediums showed a slight cloudiness, but gradually became more marked, and later the growth became flocculent and ultimately formed an abundant sediment at the bottom of the tube. There was no indol reaction in these mediums.

Litmus-Whey: The fluid remained transparent and reddish-purple, and the bacillus produced no acid.

Glucose-Agar: There was no production of gas.

Potato: At first sight there appeared to be no growth at all, but examination of the surface revealed a slightly moist and very thin deposit.

Morphologically, the bacillus cultivated on agar was as a rule very motile, easily stained with the basic anilin dyes, gram-negative, and rod shaped.

Immunologic Examination.—The bacillus was agglutinated markedly by typhoid-immune serum. Bacteriologic examination of the feces many times ended in negative results. Negative Widal reactions were obtained nine and fourteen days after the onset of the disease. From the fluid that flowed from the operative wound and from the blebs around the wound, a bacillus was cultivated whose properties were ascertained to be identical with those of the bacillus from the blood of the patient.

Postmortem Examination.—Local Changes: The operative wound of the right upper arm presented the appearance of myositis purulenta acuta, and on pressure a small quantity of grayish fluid flowed out.

Changes in the Intestine: In the lower part of the ileum, corresponding to Peyer's patches, were round or oval ulcers of various sizes. Their borders were as a rule undermined, and sometimes their surfaces appeared dark red. Large ulcers were seen, especially in the lower part of the cecum. The large intestine was filled with an enormous quantity of clotting, and its mucous membrane was a pale brownish gray. The spleen, the liver, the heart, the kidney and other organs also were undergoing acute degenerative changes.

COMMENT

The bacteriologic and pathologic findings justify the conclusion that the case was one of typhoid followed by myositis purulenta acuta. The onset was marked by chills and high fever. The temperature gradually fell, and in a week after the onset became normal. Soon afterward the temperature rose, and was accompanied by myositis purulenta acuta as a partial symptom of the general bacteremia.

Sanatorium Food Monotony.—The importance of nourishing food in sufficient quantities is no greater than the importance of having it pleasing and acceptable to the patient. This is recognized by the relatives, friends and well-wishers of the patient. But unfortunately in many sanatoriums attention is given only to the nutritive aspect of the food and its quantity, while a sad indifference is manifested to its no less important psychological aspects. In the patient's humble home, every effort is made—and properly—to cater to his appetite. The well sacrifice their own comfort in order to further the assimilative forces of the sick by attending to the psychic signaling of the stomach. In the sanatorium it is argued that individual attention in these matters cannot be given. Ergo, a nauseating monotony is introduced in the form of a weekly menu as unalterable as the laws of the Medes and Persians. The guaranteed stability of this dietetic order enables every patient to anticipate with apprehension and loss of appetite the exact arrival of the dish that to him happens to be intolerable. Moreover, the anticipatory distaste irradiates over other food in the same meal which would otherwise be agreeable. Thus the patient is deprived of a most important adjunct to his cure.—Samuel Wolman, M.D., *The Survey.*

Clinical Notes, Suggestions, and New Instruments

AN IMPROVED MODIFICATION OF THE DURHAM FERMENTATION TUBE

K. D. Graves, M.D., Richmond, Va.

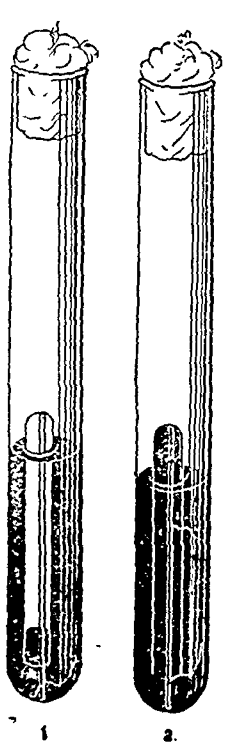
Owing to the fact that certain germs, notably the *Bacillus coli,* have specific action on lactose, breaking it up with the formation of gas when they come in contact with it in culture mediums, it has been the custom for a number of years to use a culture medium having lactose as one of its constituents as a means of testing germs for their sugar-breaking property. A number of containers for the culture mediums have been used, the first of which Smith[1] described in 1889. This bears his name, and has been the one most generally in use until the last few years.

In 1899, Hill[2] suggested a modification of Smith's tube, which consisted of a tightly fitting ground glass stopper with which to close the long arm.

Both Smith's and Hill's tubes, however, were expensive, bulky and hard to clean; hence, when Durham,[3] in 1900, described his tube, which consisted of an ordinary test tube with a smaller tube inverted inside of it, it was considered a distinct step forward.

Durham's tube, which seemed to give satisfaction, has come into general use, and is now considered equally as efficient as the Smith tube. Recently, by a large series of experiments and comparative tests, Lee and Fegely[4] have concluded that "from the standpoint of total efficiency, the Durham tube seems to be the superior of the Smith tube."

In 1914, Hall[5] showed, by a comparative table of results, the value of having a beveled or diagonal edge, instead of a square one, on the inner tube. As Hall pointed out, one objection to the Hall tube is the fact that it is impossible to determine the quality of gas formed in this tube; but this is not really important, since it is simply the presence of gas-forming bacteria that is of interest in the presumptive test for colon bacilli. The chief objection to both the Hall and the Durham tubes is that with them it is difficult to shake up the mediums sufficiently to get the germs into the inner tube in a specimen which is not heavily infected. By running duplicates, inoculated with *B. coli,* I have found that by shaking samples thoroughly several times a day, I would frequently get gas formation in tubes whose unshaken duplicates would not show gas until several hours later; and on comparing the shaken and unshaken tubes, a larger percentage of gas in the shaken tubes was usually obtained than in the unshaken ones.



Tube 1, inner test tube in position inverted over a wooden rod; Tube 2, after being heated in the autoclave, the inverted tube becomes filled with the medium.

These results caused me to feel that probably in making presumptive test of water samples for *B. coli,* this organism was present in a number of cases in such small amount that the germs did not multiply in sufficient numbers to inoculate the inner tube during the time allowed for incubation. The causes which could produce a negative report on a sample of water which had gas-forming bacteria present seem to me to be: (1) The germs might be purely aerobic; (2) the sample of water might have a tendency to stratify near the top of the tube, since it is of a lower specific gravity and does not mix

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1. Smith, Theobald: Centralbl. f. Bakteriol., 1890, 7, 502.
2. Hill, H. W.: Jour. Boston Soc. Med. Sc., 1899, 3, 137.
3. Durham: Jour. Exper. Med., 1900-1901, 5, 353.
4. Lee, R. E., and Fegely, W. H.: Am. Jour. Pub. Health, 1914, 4, 999.
5. Hall, I. W.: Am. Jour. Pub. Health, 1914, 4, 1173.

freely with the bile medium, and (3) the live germs might be held near the surface of the medium by surface tension.

Taking these facts into consideration, I have devised a tube which overcomes the principal objection to the Durham tube. With this tube it is comparatively easy for bacteria to pass into the inner tube; it is scarcely any more difficult to make and to clean than is the Durham tube, and it is no more bulky.

Technic.—Into a test tube, about 20 mm. in diameter and 250 mm. long, is tubed about 20 c.c. of the medium to be used. (1 per cent. lactose-peptone bile, or lactose-peptone broth). Into this is dropped a tube, 30 mm. long and about 5 mm. in diameter which is inverted over a wooden rod, 50 mm. long and about 2 mm. in diameter. Wooden swab applicators will answer this purpose (Tube 1). The test tube is then slanted to an angle of about 45 degrees and heated to 15 pounds' pressure in the autoclave for half an hour; the escape valve to the autoclave is left slightly open, so that the air which was in the inverted tube escapes as the medium heats up, and its place is taken by vapor from the medium; and later, after the heat is cut off and the medium cools, the vapor condenses, and the inner tube becomes filled with the medium (Tube 2).

I have used these tubes in the laboratory of the Richmond Health Department for the past six months, running them in duplicate with the regular Durham tubes, and they have proved themselves eminently satisfactory.

ADVANTAGES

The use of this tube offers the following advantages:

1. The mouth of the inverted tube is lifted some distance from the bottom of the test tube, allowing free circulation of the mediums in and out of the inverted tube.
2. Shaking is more thoroughly accomplished, since the impact of the inverted tube with the wooden rod causes a sort of churning movement, which draws in and expels the mediums.
3. Raising the mouth of the inverted tube causes a certain amount of gas which is formed between the mouth of the inverted tube and the bottom of the large tube to be caught.
4. The inside tubes are easier to fill, as they are raised from the bottom of the test tube, and a much better egress is offered for the air which they contain.

A DEVICE TO IMMOBILIZE THE HEAD AND EYELIDS DURING OPERATIONS ON THE EYEBALL

E. R. Crossley, M.D., Chicago

Many forms of lid speculum have been devised for controlling the eyelids during operative procedures on the eyeball, most of which depend on the force of a spring of some character to retract the lids. All these devices have their weakness in their frailty and the fact that the patient "can squeeze the eyeball itself" with the lids and actually throw the speculum out of the eye during the operation.

With the ordinary form of speculum, the routine procedure before doing a cataract extraction, after the patient has been placed in position on the table, is to talk to him to get control and his confidence and attempt to exert a hypnotic influence on his mind. If he happens to be a good patient, the surgeon succeeds. If nervous and excitable, as most are, he may roll the head to one side at the critical moment, when the knife is through the anterior chamber, and interfere seriously with the incision or cause the operator to do serious damage to the eye with the knife, if he does not dexterously follow the movement of the head.

The most serious damage may come after the incision is completed and the anterior chamber is open. He may squeeze violently enough to throw out the lens and vitreous through the opening, and lose the eye entirely. Then the patient is told that it was his own fault, for he squeezed. This is not a true statement, for the act is largely involuntary on his part, and we as operators, knowing it to be such, are responsible and should take some positive means to control the patient so that such mishaps are impossible. Undoubtedly, this common accident has occurred to all who are doing an extensive amount of this kind of work.

In the presentation of this appliance for the immobilization of the head and eyelids during operations on the eyeball, I offer a mechanical device that takes complete control of the head and eyelids more effectively and efficiently than a trained assistant can possibly do.

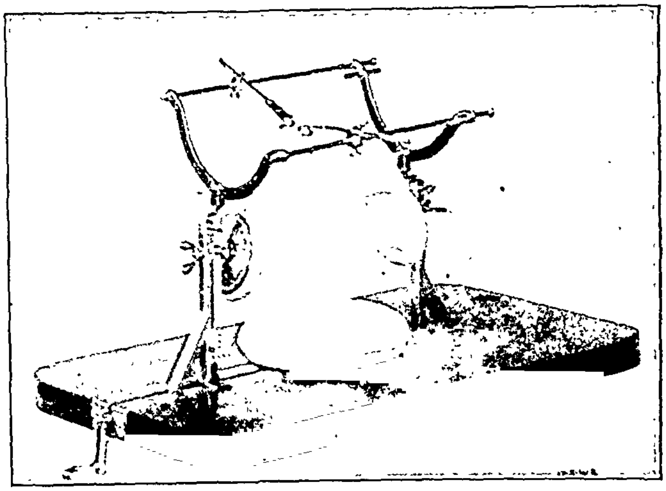


Fig. 1.—Apparatus for immobilization of the head and the eyelids.

With this head clamp and eyelid retractor, the operator can go to his operation with a feeling that no accident is going to occur to detract from his good results, and that he can positively assure his patient that he cannot move and injure himself during the operation.

This reassures his mind and inspires confidence in the operator, obtaining a perfect control of the situation that is impossible to obtain otherwise.

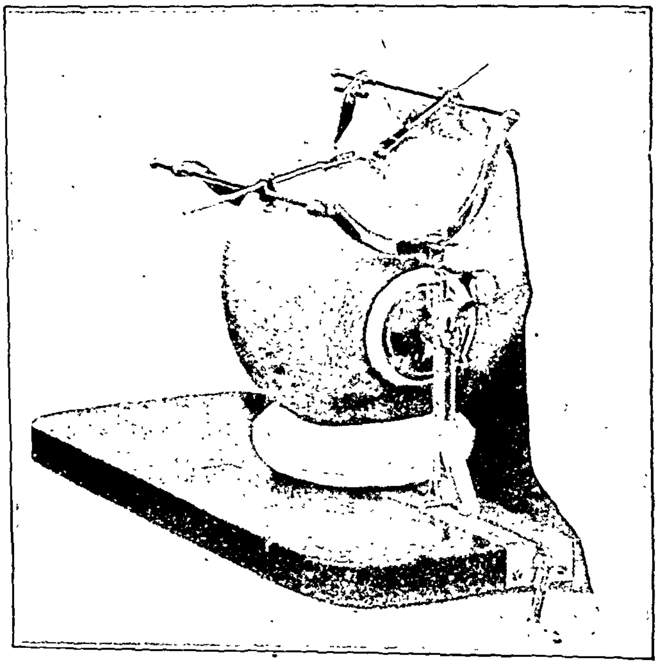


Fig. 2.—Patient with head and eyelids fixed ready for operation.

The apparatus consists of two parts, the base and superstructure or framework carrying the lid hooks.

The base consists of a rectangular wooden block 12 by 22 inches, lengthwise through which is a long screw on which are mounted two strong metal uprights, one of which is stationary, and the other movable. Attached to these are large pads, which grasp the sides of the head as the one approaches the other. The superstructure is a metallic frame which attaches easily to the uprights. On the crossbars of this structure are mounted two sliding locks, for fixing the lid hooks after the lids have been retracted.

Figure 1 shows the apparatus fully set up. Between the two uprights is placed a circular pad which serves as a comfortable head rest. The length of the base is 22 inches, the average width of surgical tables. By means of clamps, the apparatus is fixed firmly to the table on which the patient lies.

Figure 2 shows the patient on the table with the head and the eyelids fixed ready for operation.

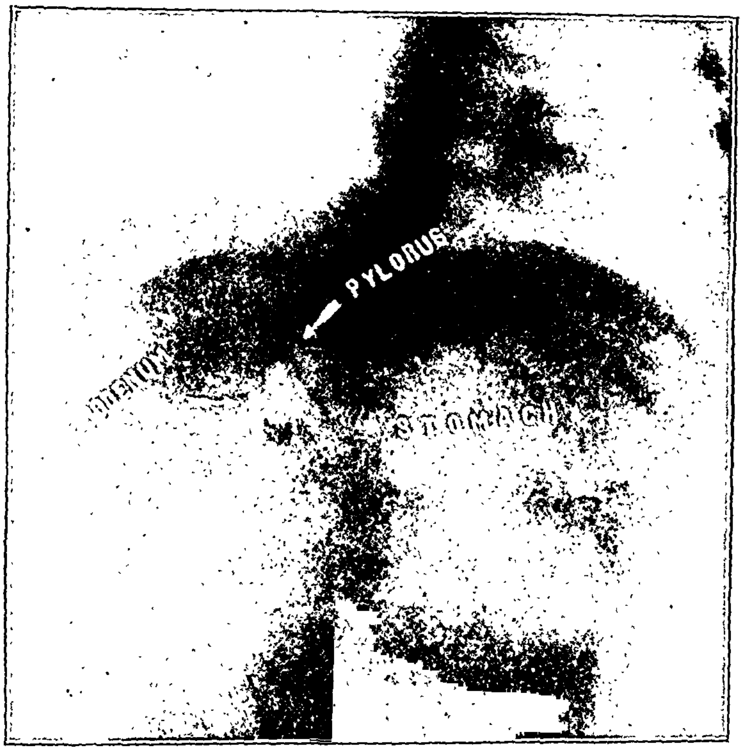
In this illustration it will be noticed that the lids are retracted away from the eyeballs, preventing any possibility of squeezing.

29 East Madison Street.

OPEN SAFETY PIN IN AN INFANT'S STOMACH AND DUODENUM

C. Winfield Perkins, M.D., New York

A mother, after a temporary absence, entering the room of her child, aged 14 months, noted that the youngster was swallowing with difficulty. These symptoms terminated in a short time. The mother, naturally becoming suspicious, examined the child's clothing, and where there had been two safety pins, only one was in evidence. A physician was then consulted, and a careful watch for symptoms with a daily examination of the stools was made, without any results. The child all the time seemed perfectly well, showing no symptoms of discomfort whatsoever. A week passed, and the little patient was referred by Dr. J. P. Seward for roentgen examination.



Position of safety pin two weeks after the accident. Stomach distended. The duodenum is indicated by the white dotted line.

Fluoroscopic and roentgenographic examination visualized and open safety pin lodged in the pyloric region. It was decided to wait a while longer with the hope that the pin might pass, as the child continued in good physical condition. The second roentgenogram, a week later, showed the pin located in the same position, associated with a distended stomach and the beginning of some gastric distress, for the child was now continually sleeping on the abdomen. Operation was now decided on, and Dr. W. G. Crump of New York removed the open safety pin, the location and position of which were of exceptional interest, the bar of the safety catch having passed the pylorus into the duodenum, while the sharp end of the pin was embedded in the gastric mucous membrane of the pyloric region, thereby assuming the anatomic angle between the pylorus and the first portion of the duodenum. It can readily be seen that the passage of the pin under such circumstances would be practically impossible.

The child recovered without incident after the operation.

234 Central Park West.

A TUBE FOR BLADDER DRAINAGE IN THE FIRST STAGE OF SUPRAPUBIC PROSTATECTOMY

Edgar G. Ballenger, M.D., and Omar F. Elder, M.D., Atlanta, Ga.

As a rule the major portion of the time required for the preliminary bladder drainage in a two-stage prostatectomy is taken in securing a snug-fitting purse-string suture around the tube.

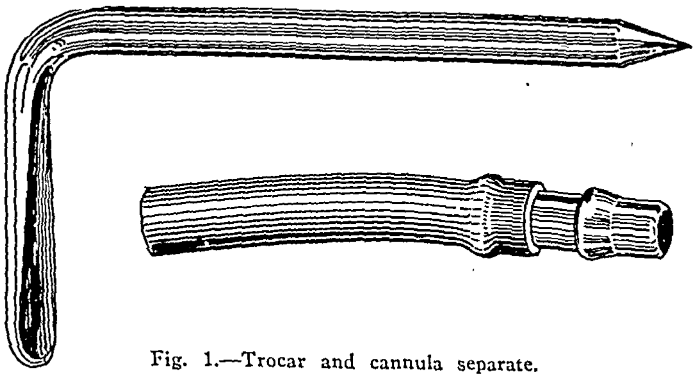


Fig. 1.—Trocar and cannula separate.

To shorten this time and to facilitate the procedure, we have devised a trocar-drainage tube, which is carried through the bladder wall by means of a pointed obturator, which is then taken out, leaving in place the drainage tube, which is connected to a rubber tube, and the urine allowed to flow out.

No suturing of the bladder wall is required, as the tissues composing it are merely pressed apart and it fits snugly around the tube, which cannot slip out of the bladder because of a shoulder on the part of the tube in the bladder. Another shoulder on the outer part of the tube prevents its slipping into the bladder. The obturator is sharpened in a rounded manner and therefore has no cutting edges.

The skin incision, which has been made in the usual manner, is closed with two or three silkworm-gut sutures. The usual care, of course, should be taken to have the bladder distended and the peritoneum pushed well up out of the way. The operation can always be done under gas-oxygen anesthesia or novocain, as it is not necessary to have the muscular relaxation that is required for a purse-string suture.

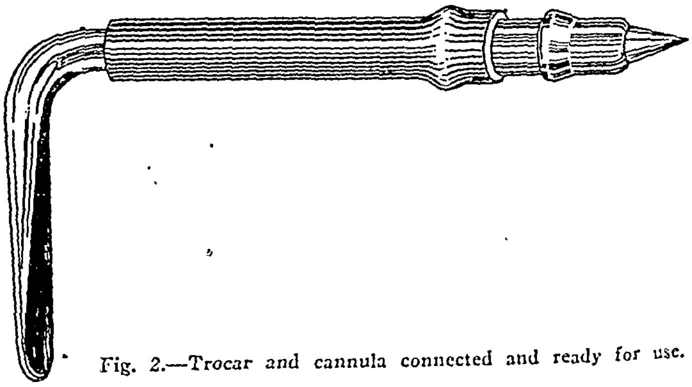


Fig. 2.—Trocar and cannula connected and ready for use.

The advantages, therefore, of such a tube are a shorter time for the operation, a milder anesthesia, and an opening in the bladder which fits the tube so closely that no leakage of urine occurs.

As can be seen from the illustrations, a rubber tube is firmly connected to the outer end of the metal tube. This permits an easy connection to the tube leading to the bottle into which the urine drains. The caliber of the tubes we have employed is one-half inch.

A CARDIOSPASM DILATOR

J. W. Larimore, M.D., St. Louis

The cardiospasm dilator described here was developed to meet certain exigencies in the treatment of cardiospasm cases. It was made by using an ordinary stomach tube of small diameter and attaching to its end the tapering tip of a small bougie. A rubber balloon was then fastened about the tube and bougie end, as shown. About this was placed a bag made of very light weight silk, and so cut that when the first or inner balloon was inflated, there would appear a constriction about the middle. A second balloon was fastened over this. Air-tight fastening of the ends of the balloons was made with rubber cement and winding with small silk thread. This constitutes the dilator proper. Another small balloon may be added inside the first large balloon at its proximal end (Figs. 1 and 2*B*). This balloon is also covered by a silk bag which limits its degree of inflation. Its tube for inflation may extend, as is shown, *through the lumen of the* stomach tube. By a three-way stopcock on the proximal end of the apparatus, either the small balloon or the large outer balloons may be inflated. The small balloon is used by inflating it primarily for locating the instrument definitely within the constriction. It may or may not be used, as circumstances demand.

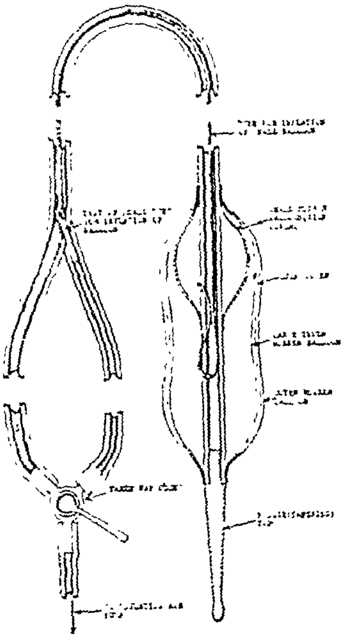


Fig. 1.—Construction of cardiospasm dilator.

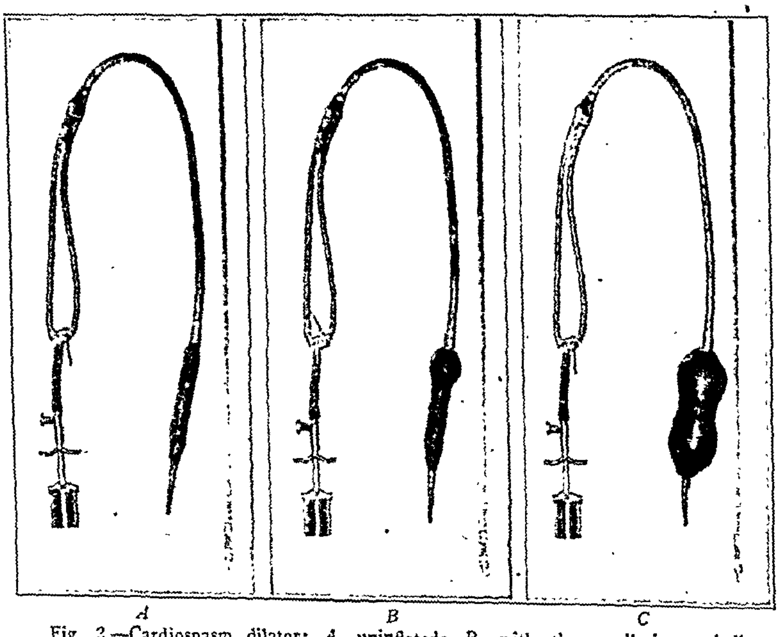


Fig. 2.—Cardiospasm dilator: *A*, uninflated; *B*, with the small inner balloon inflated; when this is introduced to the constriction, the large balloon is properly placed within the spasm; *C*, with the three walled dilating balloon fully inflated.

Air inflation has been found most satisfactory, and is accomplished by the pump from a blood-pressure apparatus. The instrument is shown in the illustrations, and its dimensions may be determined from the accompanying measure.

It has been found that a manometer need not be used, and that the expression of pain by the patient is an adequate and sure guide. The number of strokes of the pump necessary to secure inflation to a moderate or high pressure may be previously determined, and with this knowledge the extent of dilatation during treatment may be readily estimated by counting the strokes which are sufficient to produce pain reaction.

A mandarin is unnecessary for the introduction of the instrument. The tapered bougie tip makes unnecessary preliminary dilatation with bougies. The construction of the inflation balloons allows the instrument to establish itself at the constriction level without slipping above into the sac or below into the stomach.

PELLAGRA IN CHILE

Howard K. Tuttle, M.D., Coquimbo, Chile, South America

I believe that this case of pellagra is the first to appear in Chile.

History.—A white girl, aged 11 years, was brought to our company dispensary for treatment. The other members of the family, including three sisters and two brothers, were in good health. The patient first noticed that the skin on the backs of the hands was becoming red, and that the redness was gradually extending up the forearm, being accompanied by considerable burning and itching. Later the disease appeared on the face, forehead and sides of the neck; the tongue was swollen and sore, and the mouth hot and dry. There were pain in the epigastrium, intense thirst and severe attacks of vomiting. Diarrhea accompanied by cramplike pains in the lower abdomen had been present for some time. Nervous symptoms, such as headache, dizziness, choking sensations, tenderness over the spine, or mild convulsions, also disturbed the patient.

Physical Examination.—The skin over the backs of the hands, forearms, face, forehead and sides of the neck was covered with a reddish-brown, scaling, thickened epithelium. On the hands and arms the scaling was very marked, and extended from the base of the nails to within about 3 inches of the elbow, ending in a distinct outline at the dress sleeve. The mucous membrane of the tongue was swollen, reddened and thickened, but smooth, except for a few deep fissures. The patient had a sad, forlorn facial expression. There was some tremor, and a slow, unsteady gait, showing marked weakness. Palpation revealed severe pain over the epigastrium and dorsal spine.

Treatment and Course.—All corn, cornmeal, rice and dried vegetables were prohibited, and meats, fish, eggs, fruits and milk substituted. Arsenic and dilute hydrochloric acid in proper doses were given internally, and an ointment composed of oil of cade, zinc oxid and petrolatum was applied. Under this treatment the dermatitis showed considerable improvement, especially on the face. This treatment had been instituted during the winter months, but when spring returned, the child was again living in the careless condition of poverty and indifference. The disease began to make rapid progress, resulting in extreme emaciation, anemia, mild dementia and death.

COMMENT

This case presented symptoms so distinct that they could hardly have been mistaken. It is of particular interest, since it serves to illustrate the wide distribution of pellagra, and it is probably the first case reported from Chile.

Disease Defined.—Disease is that condition of an individual in which there is, apart from the normal changes due to age, an alteration of the structures or functions or sensations usually found in the average man of any particular race.—Prof. Ernest S. Reynolds, Bradshaw Lecture.

SYMMETRICAL OSTEOMYELITIS FOLLOWED BY COMPLETE REGENERATION

George Blackburne, M.D., Newark, N. J.
Assistant Attending Surgeon, St. Michael's Hospital; Assistant Attending Gynecologist, Newark City Hospital

M. R., white girl, aged 12 years, was referred to me in December, 1914, with the following history: Five months before, the ends of both thumbs had become swollen and painful. A pustule appeared on the ball of each thumb. These pustules were incised by the patient's physician, evacuated and dressed at intervals for this period. Amputation of the terminal phalanges was suggested, but was refused by the family, who at about this time moved to Newark and brought the child to me.

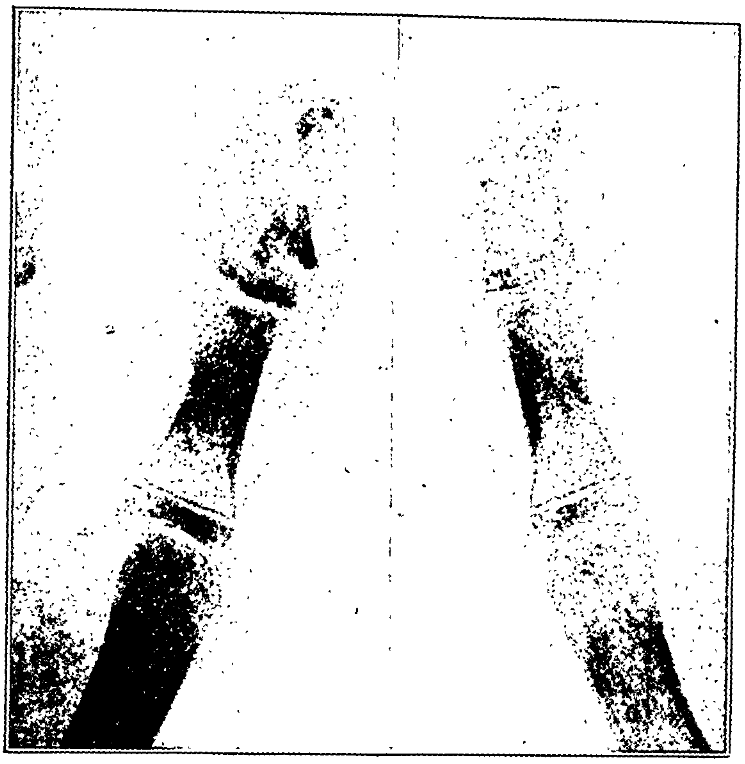


Fig. 1.—Condition of thumbs, Dec. 28, 1914.

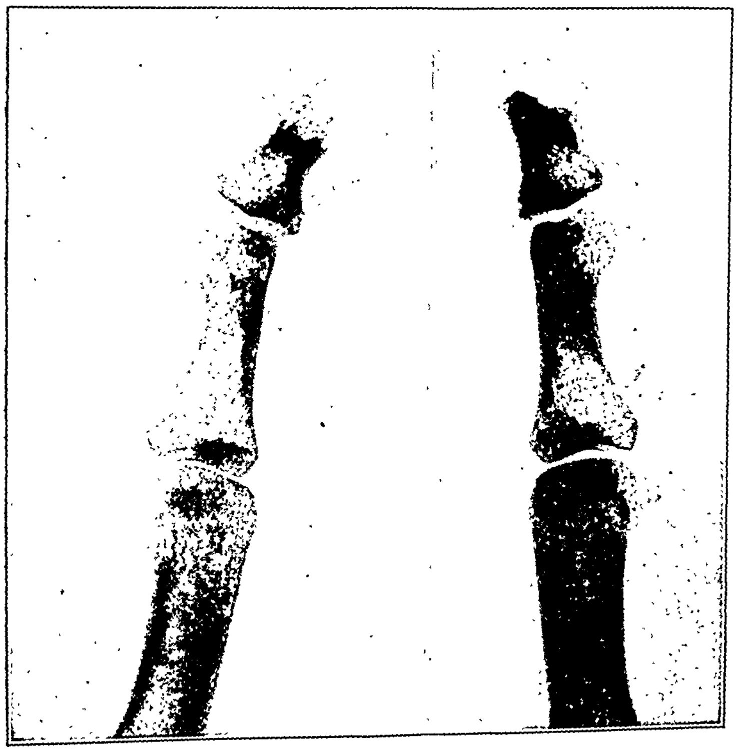


Fig. 2.—Regeneration of phalanges, January, 1917.

Examination revealed a sinus on the ball of each thumb, and loose bone could be detected on probing. A roentgenogram taken by Dr. C. F. Baker, Dec. 28, 1914, revealed complete destruction of the terminal phalanges of each thumb, extending to the epiphyseal line. There were loose sequestra, in each case, as shown in Figure 1. Under local anesthesia, the sinuses were enlarged and the sequestra removed. This was followed by healing in about three weeks.

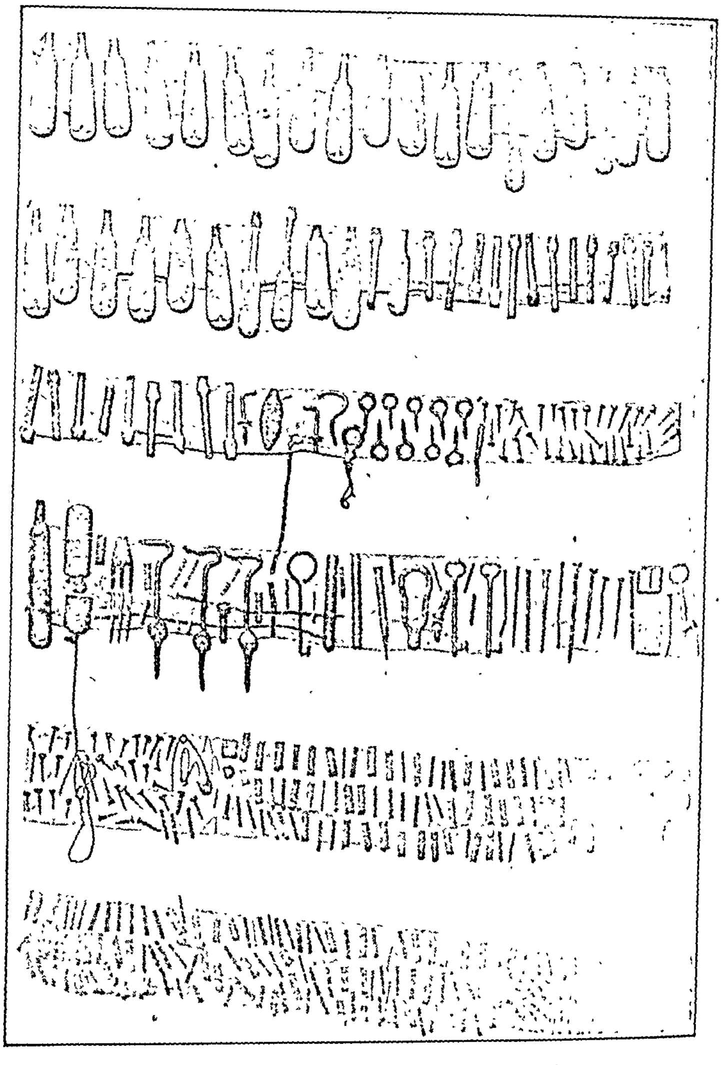
No further attention was given the patient until January, 1917, about two years later, when on examination bone had apparently reformed, and a second roentgenogram (Fig. 2) was taken, showing complete regeneration of the phalanges.

This case seems of particular interest, both from the standpoint of etiology (probably neurologic) and from the end-result.

A CASE ILLUSTRATING FOREIGN BODIES IN THE STOMACH

E. L. Eliason, M.D., Philadelphia

The patient was operated on in Dr. J. B. Carnett's service at the Philadelphia General Hospital. He was referred from the men's nervous ward for operation for acute empyema of the gallbladder. At operation this condition was found, with 213 gallstones. In addition, 452 foreign bodies weighing 3 pounds were removed from the stomach. The patient made a good recovery.



Foreign bodies removed from the stomach.

REPORT OF CASE

J. S., man, admitted, June 16, 1917, to the neurologic service of Dr. Charles Potts in a rather pronounced state of melancholia, had a chill, July 4, and his temperature rose to 105 F. Physical examination revealed a rigid abdomen with marked tenderness and rigidity over the upper right rectus muscle. The leukocytic count was 11,800.

When the patient was transferred to the surgical ward the following day, the temperature had fallen to 100, and the rigidity was less. A few days later, because of a return of the symptoms, a further examination of the abdomen was made. Rigidity and tenderness were again found over the gallbladder. In addition a mass was found with an irregular outline filling the right loin and extending across the abdomen and merging above with the liver. The mass on palpation was found to be movable, and gave the impression of a bag of stones. Dr. R. G. Torrey of the medical service reported the same findings, and further stated that the mass seemed distinct from the liver, but that it could not be clearly outlined on account of muscle rigidity. A hypernephroma of the right kidney was thought of, as was also a retroperitoneal neoplasm. The patient had vomited a rusty brown fluid, which was examined for blood and found negative. No roentgenogram was taken.

July 16, I operated through a modified Martin J-shaped incision. The gallbladder was found enormously distended, greatly infiltrated, and covered with organizing lymph. The duodenum, colon and omentum were closely adherent to it. Filling the entire upper abdomen was a greatly hypertrophied stomach, filled with foreign bodies. The stomach was opened and found to be filled with 452 bodies consisting of nails, pins, tacks, spoons, hooks, glass, forks, etc., as shown in the illustration. The printers' type was wedged so tightly in the pyloric end of the stomach that it had to be picked apart by the finger before it would come loose. The stomach was emptied and closed by a triple tier suture. The gallbladder was next removed and found to be gangrenous and filled with pus and stones.

The patient was drained and returned to the ward. The postoperative course was rather stormy for forty-eight hours, but the patient then improved rapidly. On the third day the patient tried to remove the safety pin from his drainage tube and swallow it.

August 10, the bile drainage had stopped and the wound was almost entirely healed. Roentgenoscopy revealed no foreign bodies in the gastro-intestinal tract. The patient stated that he swallowed the first foreign body just three weeks before operation.

August 14, the patient was out of bed.

August 23, the patient was surgically ready for discharge.

320 South Sixteenth Street.

THE USE OF CALCIUM CHLORID TO PRESERVE MOISTURE IN ANATOMIC SPECIMENS AND CADAVERS

William F. Hemler, M.D., Washington, D. C.
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On account of the high price of glycerin, we began to experiment, about a year ago in the laboratories of Georgetown University School of Medicine, to obtain if possible some other substance to keep anatomic specimens moist. As a result, we have adopted for this purpose purified calcium chlorid.

Brain specimens were first hardened in a 5 to 10 per cent. solution of formaldehyd, for about two months, and then transferred to the saturated solution of calcium chlorid, in which they remained for one week. They were then placed on ordinary dissecting room trays, without any cover, except another tray inverted to keep out the dust, but in no solution whatsoever and without even a damp cloth covering to retain moisture.

These specimens have now been kept in this manner for periods ranging from one to nine months, at ordinary room temperature and during the hot months of a Washington summer.

The specimens are perfectly moist and well preserved, and in these trays are readily accessible for study by the students. The gray and the white matter are to be distinguished better than in fresh brains.

By putting about 2 pounds in the embalming fluid for each cadaver, we have apparently been successful also in keeping them moist during dissection.

1330 East Capitol Street.

Military Medicine and Surgery

TENDON OPERATIONS FOR GUNSHOT INJURIES OF THE HAND

LEO MAYER, A.M., M.D.
NEW YORK

In a recent series of articles[1] I outlined the principles of a new system of tendon transplantations based on the anatomy and physiology of tendons. The essential principle of this system lies in the coordination of each step of the operation with the exact anatomic and physiologic facts, as ascertained by researches on the cadaver, by animal experimentation, and by operations on human beings. Thus, the tension under which the tendon is sutured conforms to the normal tension, a physiologic fact hitherto unknown; the transfer of the tendon from its original bed to the new site follows the laws governing the gliding mechanism of tendons; the implantation of the tendons is such as to assure an anchorage as firm as the normal; even in the postoperative treatment the length of time allowed before exercise is begun is determined by exact experimental data. The results attained by the method, as observed in 250 cases of poliomyelitis and in fifty tendon transfers subsequent to gunshot injuries, justify its employment as a sound surgical procedure.

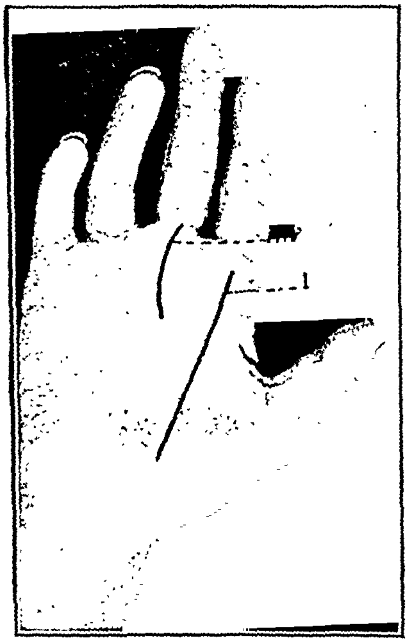

Fig. 1.—The incisions for transplantation of the flexor sublimis tendon of the index finger for the severed flexors of the middle finger: 1, first incision; 2, second incision.

At the present time a double significance attaches to a rational system of tendon operations. First, there is the large group of poliomyelitis cases in which decided improvement of function can be obtained by tendon transplants; secondly, there will unquestionably, provided the war is not brought to an abrupt conclusion, be a large number of patients with gunshot injuries, on whom similar operations can be satisfactorily performed. That this group of patients will probably represent no small percentage of those to be treated in our American base hospitals is shown by my experience during a three years' service as surgeon to a 500 bed Red Cross base hospital near Berlin, where of 1,400 operations, fifty, or almost 4 per cent., were performed on tendons.

The purpose of this paper is to draw attention to several tendon transplantations hitherto not described, which I have found of service in gunshot injuries of the hand. One of the commonest lesions seen in a base hospital is a perforating wound of the hand, the wound of entrance being located on the palmar aspect, and the larger star-shaped wound of exit on the dorsum. Almost always one or more metacarpal bones are fractured, and the flexor and extensor tendons of one or more fingers are completely severed. Such an injury leaves the patient with a badly crippled hand, since one or more fingers are not merely useless but in the way. Despite the usual demand for amputation of the helpless members, it seemed to me advisable to conserve wherever possible, even though a complete restoration of function could not be hoped for. Therefore, in all cases in which the hand was not irretrievably shattered, I attempted to restore function by means of tendon operations for both the flexors and the extensors. These operations cannot be considered in the same category as the physiologic transplantations described in my previous articles, since from the nature of the injury it is impossible to utilize a tendon sheath as a path for the transferred tendon, and since the transferred tendon must be sutured to another tendon instead of being directly attached to the bone. In other respects, however, they conform to the principles of the physiologic method.

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[1] Mayer, Leo: Surg., Gynec. and Obst., 1916, **22**, 182, 298 and 472.

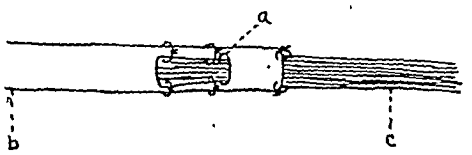

Fig. 2.—Suture of tendon to tendon when overlapping is possible: *a*, button-hole opening; *b*, flexor profundis tendon of the injured finger; *c*, transplanted flexor sublimis tendon.

TECHNIC

The operation for the severed flexor tendons consists in transplanting the sublimis tendon of the adjacent finger and suturing it to the distal end of the injured flexor profundus tendon; that is, two adjacent fingers are thus supplied with the profundus tendons alone, since the one sublimis tendon is converted by the operation into a deep flexor. The steps of the operation, which I always perform under local anesthesia, are as follows:

(For the purpose of illustration I will assume that both flexor tendons of the middle finger have been severed, and that a mass of scar tissue the size of a 50 cent piece occupies the midpalmar region and is densely adherent to the bone.)

The first incision runs from a point 2 inches distal to the annular ligament in a line with the tendons of the index finger to the proximal phalanx of this finger (Fig. 1). The incision is deepened through the palmar fascia, until the sublimis tendon is visible throughout its course.

The second incision is made distal to the scar tissue over the severed flexor tendons of the middle finger; it is about 1½ inches long, slightly bowed, with the convexity toward the little finger, and extends to the base of the middle finger.

The flexor tendons of the middle finger are then dissected free from the adhesions which usually bind them down. The operator must pay particular attention to this step, since adhesive bands frequently extend well into the sheath. When properly freed, gentle traction on the flexor profundus tendon should produce flexion of the finger.

A subcutaneous channel is then bored with a dressing forceps from the proximal end of the first incision to the second incision. This step of the operation is usually rather difficult, owing to the presence of scar tissue. It is better to give the channel a slightly curved direction, since a straight course would necessitate boring between scar tissue and bone; the slight curve tends to be obliterated by the action of the tendon as soon as active motion has begun, whereas boring between scar tissue and bone tends to produce adhesions which nullify the effect of the operation. When a channel sufficiently roomy to accommodate the tendon has been bored, the sublimis tendon of the index finger is divided at the metacarpophalangeal joint, dissected away from the deep tendon, and drawn through the subcutaneous channel as rapidly as possible so as to avoid drying.

The final step of the operation consists in suturing it to the flexor profundus tendon of the third finger. I have applied this suture in two ways. When both tendons are well developed and can be made to overlap for three-fourths of an inch, I make a buttonhole opening in the tendon of the injured finger about a quarter of an inch from its severed end, and thread the sublimis tendon through this opening (Fig. 2); the two tendons are held together by means of from four to six fine interrupted chromic gut sutures so placed as to flatten the tendons against one another. To promote firm fixation of the tendons to another, it is advisable to traumatize slightly the surfaces of the tendons which are brought into apposition.

Another method of tendon suture is indicated if the tendons are friable or cannot be made to overlap. Under these conditions I have found that the first suture method did not give sufficient security. Therefore, after suturing the tendons by means of the Lange stitch (Fig. 3 *A*), I reenforce this suture by transplanting a piece of fascia from the calf. The technic of this procedure when practiced occasions no difficulty. A 3 inch incision is made a hand's breadth above the annular ligament of the ankle and a strip of fascia 2 inches long and 1 inch wide is dissected away from the muscles. Particular care is taken to handle only the corners of the fascia, so as not to injure the loose fatty tissue, which at this point covers the deep surface of the fascia and is of particular importance in facilitating the normal gliding mechan-

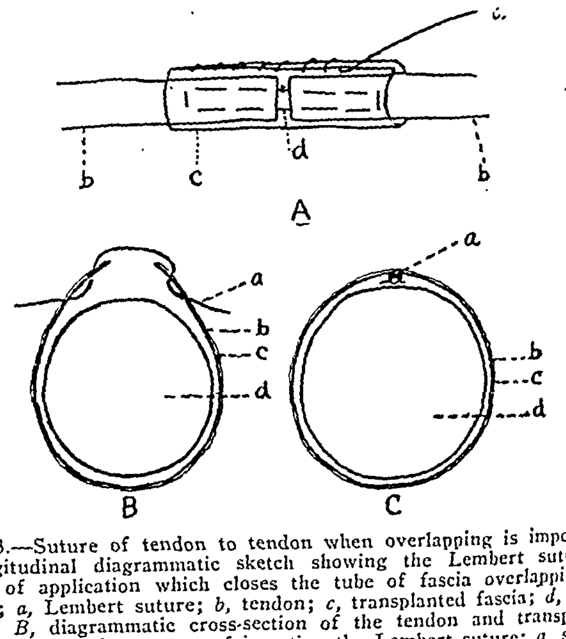

Fig. 3.—Suture of tendon to tendon when overlapping is impossible: *A*, longitudinal diagrammatic sketch showing the Lembert suture in process of application which closes the tube of fascia overlapping the tendons; *a*, Lembert suture; *b*, tendon; *c*, transplanted fascia; *d*, Lange suture. *B*, diagrammatic cross-section of the tendon and transplanted fascia indicating the manner of inserting the Lembert suture; *a*, suture; b, fascia (superficial surface turned toward the tendon); *c*, fascia (deep surface turned outward); *d*, tendon. *C*, diagrammatic cross-section of the tendon and transplanted fascia after the Lembert stitch has been drawn taut. Note that the smooth deep surface of the fascia adapted to the gliding function is turned outward: *a*, suture; *b*, fascia (superficial surface); *c*, fascia (deep surface); *d*, tendon.

ism of the muscles and tendons. At each corner of the fascial flap a suture is taken to permit more ready handling.

The assistant grasps two of these sutures, the operator the other two, and in this way the fascia is transferred from the calf to the hand. The sutured tendons are then lifted out of their bed so as to pass two of these fixation sutures beneath them. By means of a continuous Lembert suture the fascia is made to form a tube closely surrounding the sutured tendons (Fig. 3, *A*, *B* and *C*). The fascia is so placed as to turn its glistening deep surface outward; if the Lembert suture has been properly inserted, the point of union of the two tendons is completely hidden by a smooth strong envelop well adapted to a gliding function.

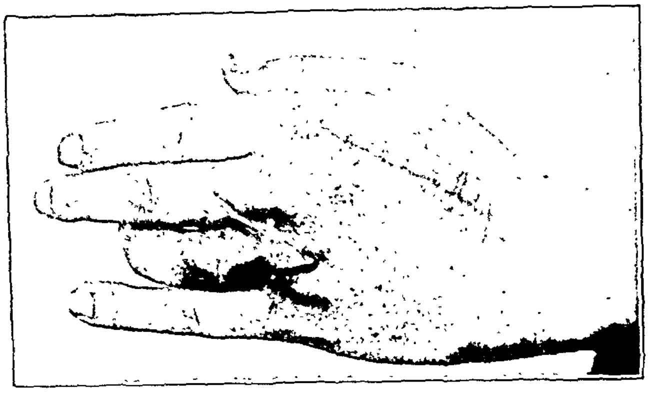

Fig. 4.—The incisions for transplantation of the index finger tendon of the extensor communis digitorum to replace the severed extensor of the ring finger.

The results obtained by either of these tendon sutures are satisfactory. The first method is, of course, the one of choice on account of its simplicity. The operation is concluded by applying continuous skin sutures.

A similar operation can be performed for the divided extensor tendon, provided the tendon of the extensor indicis proprius has not been injured. It consists in transplanting the tendon of the extensor communis digitorum, which runs to the index finger, to replace the injured tendon. The extensor indicis proprius suffices, I have found, to extend the index finger. A 4 inch incision (Fig. 4) lays bare the index finger tendon of the extensor communis digitorum. A second incision over the severed extensor tendon frees it from the scar tissue which usually holds it adherent to the bone. By means of a subcutaneous channel the substituting index tendon is transferred to its new position and sutured to the injured tendon by one of the methods previously described.

In performing the tendon suture the rule governing the normal tension of tendons must be respected. Research studies[2] on animals have shown that when under narcosis the origin of the muscle and the point of insertion of its tendon are approximated, the tension is zero. In other words, in the case of the flexors of the fingers, when the fingers are passively flexed while the muscle is at rest, the tendons of the flexor muscles show no appreciable tension. Consequently, when the operation is being performed, the tendon should be sutured in such a way as to give just this normal degree of tension.

AFTER-TREATMENT

In the after-treatment, the most important question is when to begin active exercise of the transplanted tendon. The animal experiments referred to in my previous articles were of comparatively little assistance in deciding the question, since in them the tendon was attached directly to bone, whereas in these operations the tendon was sutured to tendon. By beginning exercise too soon, one ran the risk of tearing the tendons apart before firm union had taken place. By postponing active exercise too long, one permitted dense adhesions to form. In my first case, I began exercise too soon, namely, one week after the operation. The tendons tore apart, and a secondary operation had to be performed. In the second case, in which I waited three weeks, the final result was disappointing because adhesions prevented a free gliding of the tendon. In subsequent cases, I immobilized the tendons for two weeks before permitting function. The best exercises are the voluntary contractions of the patient's muscles. In some cases, when it was difficult to secure the patient's cooperation, I employed a galvanic current to secure the necessary muscular contraction. As soon as about 20 degrees of motion had been secured, the tendon was strengthened by simple resistance exercises. For at least four weeks following the operation, the fingers and hand should be protected by a splint that holds the operated finger in such a way as to remove all tension from the suture. Failure to observe this rule can prove disastrous, as was shown in the case of one particularly ambitious patient who, contrary to orders, removed the splint while working in the garden two weeks after the operation. He happened to fall on the outstretched finger, and the suture gave way.

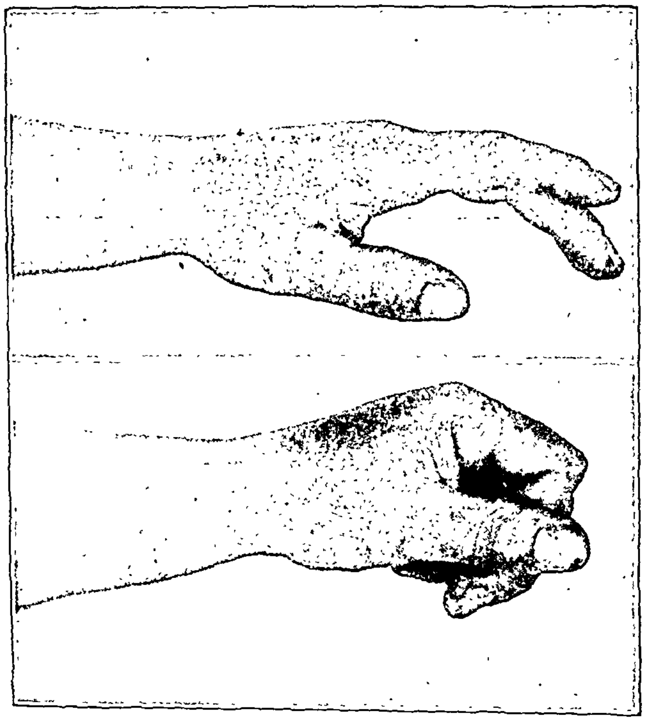

Fig. 5.—The degree of flexion secured by transferring the flexor sublimis tendon of the index finger for the severed flexor tendons of the middle finger; upper, fingers extended; lower, fingers flexed.

The outcome of the operations were satisfactory to my patients although not entirely satisfactory to me. Primary union occurred in all but one case, in spite of

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2. Mayer, Leo: Surg., Gynec. and Obst., 1916, **22**, 196.

the presence of shell fragments, and extensive scar formation. A complete restoration of function, however, I could not secure. In the most successful cases about 75 per cent. of the normal range of motion returned (Figs. 5 and 6). With this degree of motion my patients were able to use the finger for typewriting, holding pen and pencil, for light farm work, even, as in one case, for playing the piano. As a rule, the operations for the extensor tendon gave better results than that for the flexor. Sacrificing the flexor sublimis tendon produced distinct weakness for six or eight weeks after the operation; practically the normal strength returned when adequate exercise was instituted. The sacrifice of the extensor tendon of the index finger was scarcely noticed by the patients.

As stated before, these tendon operations on the hand are not ideal physiologic procedures. They represent an attempt to improve a desperate condition by a conserving method instead of ruthlessly sacrificing the entire finger. In the eyes of the patient the discomfort of the operation was fully repaid by the partial restoration of function. To the surgeon interested in tendon work these cases should form an incentive to further study, and to the perfection of a technic that will give a more complete restoration of the normal tendon motion than I have been able to secure in this first series of operations.

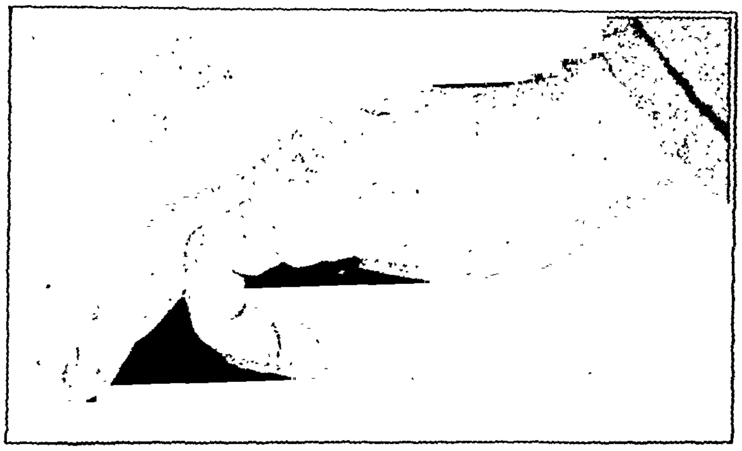

Fig. 6.—The extension made possible by transfer of the extensor tendon of the index finger (extensor communis digitorum) after complete division of the extensors of the ring finger. (The same hand is shown in Figure 4.)

41 West Eighty-Third Street.

War Activities for Antituberculosis Associations.—The National Association for the Study and Prevention of Tuberculosis has made suggestions for a course of action to be followed by state, county and community tuberculosis associations with reference to men drafted for the Army. These suggestions were formulated as the result of conferences with Army officers, public health officials, Y. M. C. A. and other organizations engaged in war work. They have been found practicable in four of the cantonments where action has been taken to carry them out. They include the procuring of a record of men rejected for service in the Army because of tuberculosis or suspected tuberculosis; those rejected by local examining boards, rejected applicants for enlistment in the United States Marine Corps and those rejected by regimental surgeons in the camps and cantonments; follow-up work for all cases discovered, which would include the work of visiting nurses, who should be asked to make a survey of families of rejected conscripts; educational work for soldiers which would include the distribution of pamphlets and folders, lectures and talks in connection with the entertainments provided by the Y. M. C. A., the Knights of Columbus, etc., which would include motion picture reels, medical talks, etc.

CARDIOVASCULAR LESIONS AND TUBERCULOSIS

METHODS AND RESULTS OF EXAMINATIONS BY THE CARDIOVASCULAR AND TUBERCULOSIS COMMISSION AT THE SECOND PLATTSBURG TRAINING CAMP FOR RESERVE OFFICERS

ALBERT P. FRANCINE, M.D., PHILADELPHIA
Captain, M. R. C., U. S. Army
CAMP GORDON, ATLANTA, GA.
J. WOODS PRICE, M.D.
First Lieutenant, M. R. C., U. S. Army
AND
FRANCIS B. TRUDEAU, M.D.
First Lieutenant, C. S., U. S. Army
SARANAC LAKE, N. Y.

On account of the military roster, we were assigned for examination one company a day, averaging 135 men. Each member of the board examined his third of this number, and any men found with signs in heart or lungs deviating from the normal were held up for combined study by the board.

In beginning our work we had no very definite plan to follow, except that our instructions, as to what would disqualify from active service or require a recommendation for special service, were plainly set forth in the very definite and excellent circulars, Nos. 20 (for tuberculosis) and 21 (for cardiovascular conditions) of the War Department, Surgeon-General's Office.

METHODS

The men in each company were assigned to us in groups of ninety in the afternoon, reporting at 1:30 p. m., and the remaining forty or forty-five men next morning, reporting at 10 a. m. The holdups from the previous day, of whom there were usually from five to ten, were reexamined by the board between 8:30 and 10 a. m. daily.

These groups reported to a sergeant in a large locker room and dormitory adjoining the three small examining rooms (bedrooms), and he entered on the form below their name, age, company and regiment. Then each examiner took a group of five men to his room and proceeded with their examination. Each examiner had a medical orderly who acted as clerk and filled in the accompanying form from dictation.

After some experimenting, we finally fixed on the following routine:

1. The five candidates were lined up and their pulses taken, standing and before undressing.

2. Then they stripped to the waist, and each man was inspected for abnormal pulsations, the character and location of the maximum heart impulse was determined, and the boundaries of the heart were outlined by percussion.

3. Then the whole five were made to exercise for about half a minute by marking double time and at the same time driving their arms forward and back, and at the command of "Halt" the examiner went down the line ausculting with care each man's heart. If when he reached a man his heart had already quieted down, he was made to exercise again. But with five men, the amount of exercise indicated was usually sufficient to keep the last man's heart well accelerated by the time he was reached. It was for this reason that we finally fixed on a group of five men and because better order and quiet could be maintained, than with a larger number, and it was also easier for the orderly at the desk.

4. Following the examination of the heart, the examiner proceeded with that of the lungs, confining this to thorough auscultation after cough and on deep inspiration. When any

deviation from the normal was found in heart or lungs, the examiner did not attempt to study the condition thoroughly, but told the man to report at 8:30 next morning for study by the combined board.

5. Each man was told to dress as the examination of his lungs was completed, and his pulse was again recorded before he left the room.

FORM FOR RECORD OF EXAMINATION

Name: Age: Company: Regiment:
Pulse rate, dressed, standing: Abnormal pulsations:
Maximum heart impulse: Thrills:
Cardiac boundaries, left: Right:
Accentuations: Arrhythmias:
Pulse rate, after dressing: After resting, if above 112:
Lungs:

After a little experience, we found that it took about twenty minutes to examine satisfactorily these groups of five men. This allowance of time can, of course, be cut down to twelve or fifteen minutes by not counting fully and not recording the pulse, except in those cases in which it is palpably rapid, or very slow. But we feel that in this work, which is exacting and in which one must remain standing and alert, the faster work is not compatible with the concentration and thoroughness which is its fundamental purpose. It also spoils the interest of the work, and it becomes a mere grind, for the work is interesting if done without rushing, and in the large number of men examined one may expect at any time to come on an interesting lesion, as will appear from the subjoined report. Hence, we do not feel that a man can do this work right, day in and day out, and work more than six hours a day.

At times we did more than this. We had to complete the examination of a company of coast artillery, which had been suddenly ordered away, 180 men in all, in one morning; and then went on with our ninety men in the afternoon, 270 men that day, or ninety men for each examiner. But it would have been impossible to have kept this pace up, nor did we in the case of the artillery men attempt to record the pulses or even to count them, but quickly satisfied ourselves that the rate was not abnormally rapid or the reverse. We think the strain and hurry showed in another way, for whereas we held up, for further study, as a rule, from five to ten men out of every company of 135 or 140 men, out of this battery of 180 men, we held up only two men at the end of the morning's work. Our examination, therefore, was probably not so thorough.

Again, a certain group of seven of the companies could be assigned to us only in the afternoons, so that their examination had to be completed then, averaging forty-five men for each examiner, with no work at all in the mornings. This we found an unsatisfactory arrangement.

From our experience, therefore, we would conclude that a full day for an examiner doing this work in a routine manner and thoroughly would be forty-five men in the afternoon and twenty men in the forenoon. This would not include the holdups, who would report to the board for study before the individual examinations began. In other words, about sixty-five men a day for each examiner and the holdups to be studied by the board is a full day's work. An outside limit would be forty-five men in the afternoon and thirty in the forenoon, or seventy-five new men a day for each examiner.

In regard to the holdups, it is very important that any lesions in the heart and lungs, even though not sufficient to disqualify, be carefully noted and reported to the Surgeon-General, in view of a possible future claim for pension for disability in line of duty.

While the foregoing does not seem numerically a great deal, or the hours very long, yet when one comes to standing on one's feet for six hours and ausculting hearts and lungs continuously day in and day out, and doing it with attentiveness, for one must neither lag nor grow inattentive, it makes a very adequate and even exacting working day.

RECOMMENDATIONS

We feel that:

1. Six hours a day is a full day for this work if done as a routine.

2. The new men should be examined in groups of five by each examiner working separately.

3. It should not take more than twenty nor less than fifteen minutes to complete the examination of these groups of five men for cardiovascular lesions and tuberculosis.

4. Each examiner should examine not less than sixty nor more than seventy-five new men a day.

5. The holdups from the previous day should report next morning for reexamination by the entire board, if the board is a small one, and this should constitute the first work of the day. Of course the holdups from each morning and afternoon period can be reexamined by the board immediately after the individual examinations on the same day. This has the advantage of not requiring the return of the holdups the next morning; it has the disadvantage of the examiners' not being fresh at the end of the afternoon's work, and there is the disadvantage of the candidate's not being fresh, as he is after a night's rest.

6. When the board is a large one, for instance, fifteen or twenty medical officers, the president of the board should select two other members to act with him as a clearing committee to whom all the holdups should be referred for final disposition. This insures uniformity of judgment and good order. The whole time of this committee will be occupied in keeping up with the holdups of the ten or more officers who are doing the routine examinations, and in the clerical work involved. The holdups of the other examiners for each day should report the following day to the clearing committee, divided, if numerous, into two groups, one in the morning and one in the afternoon.

7. The assignment of the men to the examiners should not be confined to company divisions because time is thereby lost all around; but assignment should be made by fixed numerical groups, the guiding factor being the quota stated above for each examiner. Thus three examiners, who are also doing the holdups, should be assigned sixty men in the morning, and 135 men in the afternoon, a total of 195 men, or in round numbers 200 men a day, as the extra five men could readily be added to the morning's quota of sixty. Or if the men must be assigned by companies, then the number of examiners should be adjusted to these numerical groups. In our case, with four examiners working, we could have examined two companies daily, whereas three examiners did not have quite enough to do taking one company a day, and yet could not possibly have taken two, in addition to the holdups. Where the companies number 250 men, four examiners should be assigned for each company, or according to this ratio. Thus, sixteen examiners should complete 1,000 men a day, but this board should total nineteen officers, three for the holdups.

8. There should be out of a group of 200 men, as a rule, from five to fifteen holdups daily (in the class of men in camps for reserve officers) to be studied by the board next morning.

9. The holding up of a man in this way does not in any sense mean his disqualification, and this should be explained

to him, but is simply in order that his condition may be adequately studied, and a detailed report noted for transmission to the Surgeon-General at the final completion of the examinations.

RESULTS

The holdups resolved themselves into two groups, those that had to be written up, and those that could be readily passed. Of the latter the great majority had rapid pulses. There is a wide variation of rate according to the time of day, and the character of the military exercises or drills to which the men have been subjected previous to the examinations. In the morning, the pulses as a rule ran in slow rhythm, or when the men had been doing map making or signal corps work. These averaged between 64 and 74 standing, and between 74 and 84 following the exercise test (after dressing). But in the afternoon, after a hurried or heavy lunch or a morning's hard drill, we found the majority varying between 84 and 100, and many above 100, even 120, before exercise test. The latter offered some difficulty, because even after sitting or lying down while the examiner continued with his work, many of them could with difficulty be counted below 100 (a persistent rate of 100 or above disqualifies). Accordingly, we were forced to send quite a number to the hospital for hourly observation of the pulse before we could let them go. Following this method in the more thorough search for an etiologic factor, we disqualified two candidates (Cases 1 and 3).

There is also to be taken into consideration the factor of nervousness as a cause for rapidity of pulse. Generally speaking, this played a minor rôle with the men we examined, although they were in many instances fearful of the result of the examination on account of their earnest desire to serve. There was very little effect of nervousness noted in the men who came in the morning; and as stated above, there were the other more obvious factors for acceleration of pulse rate in the men who came in the afternoon. Usually, when nervousness was a factor, a little rest brought the pulse down, or it was down when the candidate was reexamined next morning. This was true in every instance but one (Case 16), and this candidate was finally passed for active service in the absence of definite cause.

We discovered also a number of murmurs, systolic in time, in the pulmonary area and in the third and fourth interspaces to the left of the sternum, the area of auscultatory romance of Balfour. There were sixteen out of 3,134 candidates, or 0.51 per cent. These murmurs are striking, and their pathogenesis an interesting academic question; but clinically, in the absence of enlargement of the heart and accentuations, and with good response to the exercise test, they are not of particular significance, though they should be reported. Case 14 is a good example. They are not infrequent in long chested types, but occur also in big, well formed thoraces, and are not uncommon in early adult life.

There were also a number of men who developed after exercise a functional systolic murmur at the apex, transmitted into the axilla. Their hearts were, however, organically normal, and their response to exercise and pulse rate good. These were passed, and numbered fifteen out of 3,134 cases, or 0.47 per cent. Case 12 is an example.

We found also a number of cases in which the maximum impulse of the heart was in the sixth interspace when standing, but frequently in the fifth when recumbent, and inside the nipple line and normal in character, without enlargement of the heart. Of these there were passed for active service, but reported, seventeen out of 3,134 cases, or 0.54 per cent. Case 15 is illustrative.

There was one very interesting case of total bradycardia (Case 17). There was one case of idiopathic dextrocardia; and there were several cases of moderate hypertrophy in athletes, without valvular lesion.

Another large group was temporarily held up on account of "colds" and râles in the chest. Acute bronchitis was quite prevalent, indeed, almost universal in the earlier period of the camp, though not all showed râles. The three members of the commission took an active, resonating and synchronous part in this general infection. The differentiation, however, between bronchitic râles and tuberculosis offers no great difficulty, and a little study cleared up this group of holdups.

There were the usual findings of atelectatic râles at the apexes, and the so-called marginal râles at the bases in front; but in these cases the men were not as a rule even held up, unless the râles were unduly persistent.

In regard to the organic cardiovascular lesions found, and the causes for disqualification, or recommendation for special service, and in regard to the similar regulations as applied to tuberculosis, the report of the individual cases is the best exemplar. We feel that the practitioner of medicine or any one interested in this subject would do well to familiarize himself with circulars of the War Department, Surgeon-General's Office, Nos. 20 and 21, which are brief, explicit and illuminating.

CARDIOVASCULAR DISEASES

TABLE 1.—RESULTS OF CARDIOVASCULAR EXAMINATIONS OF CANDIDATES

	Number	Per Cent.
1. Candidates in reserve officers' training camp examined	3,134	.....
2. Accepted	3,124	99.06
3. Disqualified because of cardiovascular lesions	4	0.127
4. Recommended for special service but allowed to continue course at training camp	4	0.127
5. Passed for active service, but with functional lesions reported	51	1.62
6. Found with cardiovascular (organic) lesions (3 and 4 above)	8	0.255

The following four candidates were disqualified for active service and recommended for discharge:

Case 1.—*Physical Findings.*—S. G. E., aged 23, was remanded to the hospital for study of the pulse rate, where during six days' observation it was with few exceptions persistently above 100, averaging over 120 per minute. There was bilateral enlargement (moderate) of the thyroid, with a fine tremor of the head. There was no marked tremor in the hands or the fingers on extension. The heart was normal in size and there were no murmurs. There was little dyspnea after the exercise test, but the pulse rate was excessively rapid and there was palpitation of the heart.

Diagnosis.—Hyperthyroidism.

The candidate was disqualified for active service.

Case 2.—*Physical Findings.*—G. H. B., aged 36, an artist, could not keep up with the work. Double time caused serious dyspnea and faintness. He could control himself only by sitting down and holding his head between his knees. He had a chronic cough. He was poorly developed and of slight physique. The heart was overacting and very irritable. The pulse was regular but rapid. The heart boundaries were normal. The man developed marked dyspnea after exercise. Breathing was very labored. The facies was anxious.

Diagnosis.—Myocardial insufficiency.

The candidate was disqualified for active service.

Case 3.—*Physical Findings.*—F. L. M., aged 29, was of nervous type. After five days in the hospital the pulse remained persistently over 100, remaining between 88 (once), 112, 128 and 132, most frequently 128. He stated that he stood the work well. The heart apparently was normal. There was no evidence of hyperthyroidism or tuberculosis.

Diagnosis.—Persistent tachycardia.

The candidate was disqualified for active service.

Case 4.—*Physical Findings.*—E. W., aged 47, had an area of definite dulness to the right of the arch in the second and third interspaces, with expansile pulsation, unequal pulses and some arteriosclerosis. There was no tracheal tug. The heart was hypertrophied and dilated, with the left boundary two finger breadths outside the nipple line, with diffuse and heaving impulse. There were no murmurs, but the sounds lacked muscle tone. There was passive congestion of both bases. In the urine, red and white blood cells and albumin were present.

Diagnosis.—Aneurysm of arch; dilatation of heart with failing compensation.

The candidate was disqualified for active service.

The following five candidates were recommended for special service, though it should be understood that as Plattsburg was a training camp for line officers, a recommendation for special service was, as a rule, tantamount to disqualification for active service, to the extent at least that the candidate in question could not, even if he completed his training, receive a commission as a line officer. As a matter of fact, however, there might be occasional demands for special service. For instance, the commanding officer was asked to nominate a small group of men for balloon service in connection with liaison work; and through the kindness of the camp surgeon, Candidate 5 was allowed to take this service. He was extremely anxious to do something, and though at first disqualified for active service, he never left camp.

Case 5.—*Physical Findings.*—M. A. L., aged 35, had been a professional singer and later a musical manager. He was quite fat, and nervous and anemic. The heart was much enlarged to the left, the boundary being two finger breadths outside the nipple line, with the maximum impulse diffuse and heaving. There was no murmur nor accentuations. Response to exercise was poor. He showed considerable dyspnea after the exercise test. The pulse was very rapid. The urine and the Wassermann test were negative.

Diagnosis.—Hypertrophy and dilatation of heart.

The candidate was disqualified for active service and recommended for special service.

Case 6.—*Physical Findings.*—R. P. C., age 30, big chested and of athletic type, had been through the last camp and stood the work excellently. The left boundary of the heart was one finger's breadth outside the nipple line with the impulse under the nipple. It was forcible but not heaving. There was a loud systolic murmur heard at the apex and transmitted to the axilla. There was accentuation of the second aortic sound. The man had had acute articular rheumatism in 1902.

Diagnosis.—Mitral regurgitation.

The candidate was recommended for special service, and allowed to continue training at Plattsburg.

Case 7.—*Physical Findings.*—J. W. M., aged 22, gave a history of an acute heart attack following a 2 mile race from which he was in bed three months with fever and rheumatic pains. This was seven years ago. He was of a big athletic type, and had been a track man at college. There was a loud systolic murmur, heard at the apex and transmitted to the axilla and back. The heart was not enlarged. There was no accentuation of second sounds. Response to exercise and pulse rate was good.

Diagnosis.—Mitral regurgitation without enlargement of heart, and well compensated.

The candidate was recommended for special service, and allowed to complete training at Plattsburg. He was subsequently passed for active service by Major Janeway, and so is not included in figures for candidates recommended for special service.

Case 8.—*Physical Findings.*—L. R. B., aged 26, had a distinct presystolic murmur with a very sharp first sound over the maximum heart impulse, with the right boundary one finger's breadth to the right of the sternum. He had slight dyspnea after the exercise test, but his general condition was good; he was big and powerful, and had played on a varsity football team.

Diagnosis.—Mitral stenosis.

The candidate was recommended for special service, and allowed to complete training at Plattsburg.

Case 9.—*Physical Findings.*—C. A. W., aged 24, had an enlarged heart. The left border was one finger's breadth outside the nipple line. The impulse was under the nipple, forcible but not heaving. There was a systolic murmur in the third interspace to the left, transmitted upward and heard at both the pulmonic and the aortic areas, less at the aortic. Response to exercise was good. The pulse rate was within normal limits.

Diagnosis.—Aortic stenosis.

The candidate was recommended for special service, and allowed to complete training at Plattsburg.

In regard to the candidates showing functional or accidental murmurs, or who showed nonsignificant deviations from the normal, of whom there were fifty-one out of 3,134, or 1.62 per cent., the following case reports are quoted as illustrative. These candidates were all passed for active service following the rulings laid down in Circular 21, War Department, Surgeon-General's Office.

Case 10.—*Physical Findings.*—W. H. G., aged 26, had a malformed chest resulting from a fall from a bicycle in childhood. The heart boundaries were normal, except that the maximum impulse was in the sixth interspace standing, returning to the fifth interspace when prone. There was a soft systolic whiff at the apex, localized to the bell of the stethoscope, heard under all conditions except at full inspiration. There were no accentuations. Response to exercise and pulse rate was normal.

Diagnosis.—Accidental murmur. Motile heart.

The candidate was passed for active service.

Case 11.—*Physical Findings.*—J. W. B., aged 28, had a long chest and a motile heart. The boundaries of the heart were normal, but the maximum impulse was in the sixth interspace, standing, and the fifth interspace, prone. It was normal in character. When the candidate was standing, without exercise, no murmur was heard. After exercise, a fairly loud systolic murmur developed which was heard at the apex, in the axilla and in the back. This was heard also in the third and fourth interspaces to the left of the sternum, both on full inspiration and on expiration. Response to exercise was very good, and the pulse rate was normal.

Diagnosis.—Functional mitral systolic murmur.

The candidate was passed for active service.

Case 12.—*Physical Findings.*—C. S., aged 30, had a systolic murmur at the apex after exercise and transmitted into the axilla. The heart was normal in size. The pulse rate and response to exercise were normal. The murmur was not heard when the man was quiet. There were no accentuations.

Diagnosis.—Functional mitral systolic murmur at apex.

The candidate was passed for active service.

Out of 3,134 candidates, there were fifteen cases, or 0.47 per cent., showing functional systolic murmurs at the apex.

Case 13.—*Physical Findings.*—W. W. C., aged 29, was tall, very thin, flat and long chested, with a marked funnel shaped depression. The heart was normal in size and action. The apex beat was normal and not heaving. There was heard a systolic murmur, loudest in the third and fourth interspaces left of the sternum and in the pulmonary area, but also heard over the aortic cartilage, and also heard very faintly if at all in the vessels of the neck. After the exercise test this murmur became loud and was not altered by posture, and was heard best on full expiration, and faintly on full inspiration. Response to exercise was very good. The pulse rate and the blood pressure were normal, and the urine was negative.

Diagnosis.—Accidental murmur, probably cardiorespiratory.

The candidate was passed for active service.

Case 14.—*Physical Findings.*—W. W. B., aged 25, when quiet heart sounds were apparently normal, as were the boundaries, except that the maximum impulse was in the sixth interspace standing, and the fifth interspace reclining. Following exercise there was heard a systolic murmur best in the third interspace to the left of the sternum, transmitted upward and heard both over the pulmonary and the aortic regions. It was very faintly heard on full inspiration. There was good response to exercise, and the pulse rate was normal.

Diagnosis.—Cardiorespiratory murmur. Motile heart.

The candidate was passed for active service.

Out of 3,134 candidates, there were sixteen, or 0.51 per cent., showing cardiorespiratory murmur.

Case 15.—*Physical Findings.*—G. T. R., aged 22, showed the maximum impulse in the sixth interspace, on standing. It was normal in character. Response to exercise, and the pulse rate were normal. The heart was normal in other respects. The blood pressure was normal.

Diagnosis.—Motile heart (ptosis).

The candidate was passed for active service.

Out of 3,134 candidates, there were seventeen cases, or 0.54 per cent., in which the maximum impulse of the heart was in the sixth interspace, with the heart normal.

Case 16.—*Physical Findings.*—F. H. D., aged 26, was well developed and nourished, but of nervous type. He was in the hospital four days for study of the pulse, which at times was below 100, but was often 120 or above while standing. The pulse leaped rapidly as soon as, or soon after, the radial artery was palpated. The left boundary of the heart was in the nipple line. The maximum impulse was normal in character. No murmur, no exophthalmos and no enlargement of the thyroid were observed. In the fingers extended there was a fine but not exaggerated tremor.

Diagnosis.—Paroxysmal tachycardia, due to nervousness.

The candidate was passed for active service.

Case 17.—*Physical Findings.*—J. O. P., aged 23, had a pulse rate on standing of from 36 to 40, on three separate examinations one week apart. The ventricular impulse was conveyed regularly to the radials. The heart was normal in size; there were no murmurs nor accentuations. After exercise there developed a slight arrhythmia, which consisted in occasional interpolated extrasystoles. There were no pulsations in the veins of the neck, and no evidence of sets of waves in the jugular for each pulse beat. Except for the arrhythmia, there was good response to exercise. The candidate had been an athlete, playing on the Princeton varsity football team four years without being substituted for, and being chosen for the All America eleven. There was no history of syncopal attacks, and he went through the last camp well and was not held up for physical disability. He was big and powerful, and appeared in splendid condition. The urine and the Wassermann test were negative.

Diagnosis.—Total bradycardia.

The candidate was passed for active service.

This interesting case gave the board some concern, because it strongly suggested heart block, and heart block disqualifies. It even disqualifies in the French army, where of course the physical standards for acceptance are reduced to rock bottom. We therefore consulted Major Theodore C. Janeway of the Surgeon-General's staff, under whose supervision the board was acting, and after advice from him and further study of this candidate we felt that his condition was one of total bradycardia and not heart block, and so passed him for active service.

The organic cardiovascular lesions found in the examination of 3,134 candidates were:

Hyperthyroidism, Case 1.
Myocardial insufficiency, Case 2.
Persistent tachycardia, Case 3.
Aneurysm of arch, Case 4.
Hypertrophy and dilatation of heart, Case 5.
Mitral regurgitation, Cases 6 and 7.
Mitral stenosis, Case 8.
Aortic stenosis, Case 9.

The principal accidental or functional conditions found, not disqualifying, were:

Cardiorespiratory murmurs, in sixteen cases, or 0.51 per cent.
Functional systolic apical murmurs in fifteen cases, or 0.47 per cent.
Apex of heart in sixth interspace, increased motility or so-called ptosis of heart, in seventeen cases, or 0.54 per cent.
Many rapid pulses, and one case of apparent paroxysmal tachycardia due to nervousness.
A very interesting case of total bradycardia.
Several hypertrophied hearts in athletes, etc.

It is interesting to compare with the statistical scheme given in Table 1, the corresponding results obtained by the board in examining 584 enlisted men of the Regular Army, who were stationed at Plattsburg Barracks. These included 421 men of the Sixteenth U. S. Field Artillery, ninety-three men of Troop I, Second Cavalry, and seventy men of the Army Medical Corps (Table 2).

TABLE 2.—RESULTS OF CARDIOVASCULAR EXAMINATIONS OF REGULARS

	Number	Per Cent.
Examined	584	......
Accepted	583	99.65
Disqualified for cardiovascular lesions	1	0.17
Recommended for special service	1	0.17
Found with organic cardiovascular lesions	2	0.34

Thus the percentage of organic cardiovascular lesions among the candidates for reserve officers was 0.255, while among the enlisted men of the Regular Army it was 0.34. But, as we shall see later, the percentage of tuberculosis among the regulars was much higher than among the candidates.

TUBERCULOSIS

TABLE 3.—RESULTS OF TUBERCULOSIS EXAMINATIONS OF CANDIDATES

	Number	Per Cent.
1. Candidates in reserve officers' training camp examined	3,134	......
2. Accepted	3,121	99.58
3. Disqualified because of tuberculosis	8	0.255
4. Recommended for special service, but allowed to continue course at training camp	2	0.063
5. Passed for active service but with healed lesion reported	3	0.095
6. Found to be tuberculous	13	0.414

The following eight candidates were disqualified for active service and recommended for discharge:

Case 18.—*Physical Findings.*—W. D. C., aged 22, had many fine râles on cough to the third rib and the fifth vertebral spine on the right. Note was impaired and breathing was bronchovesicular over this area. Roentgenoscopy[1] revealed a definite lesion at the right apex extending to the third rib and fifth vertebral spine, involving the parenchyma and the root of the lung.

Diagnosis.—Old chronic pulmonary tuberculosis.

The candidate was disqualified for active service.

Case 19.—*Physical Findings.*—J. M. W., aged 24, had fine dry râles from the apex to the fourth rib on the left, and about the same on the right, heard posteriorly to the fifth vertebral spine. Roentgenoscopy revealed, *on the right*, scattered parenchymatous infiltration to the second rib and the fifth vertebral spine. Many fibrous strands extended from the root toward the axilla. Through the lower two thirds were a few isolated, scattered tubercles. On the left, scattered through the upper half of the lung, were numerous small, calcified tubercles. These were more conglomerate in the apex, and were characteristic of a parenchymatous infiltration to the second rib and the fifth vertebral spine. Many fibrous strands extended from the root toward the axilla.

Diagnosis.—Old chronic pulmonary tuberculosis.

The candidate was disqualified for active service.

Case 20.—*Physical Findings.*—J. B. G., aged 27, had fine dry râles on cough at the right apex extending to the third rib in front and to the fifth vertebral spine posteriorly, and also a few at the top of the left apex. Note was impaired on the right, and breathing was bronchovesicular. Definite lesion as indicated on the right was confirmed by roentgenoscopy.

Diagnosis.—Old chronic pulmonary tuberculosis.

The candidate was disqualified for active service.

Case 21.—*Physical Findings.*—A. L. B., aged 26, had fine dry râles on cough at the right apex to the second rib and the fifth vertebral spine. Note was impaired and breathing was bronchovesicular. A tuberculous lesion involving this area was confirmed by roentgenoscopy.

Diagnosis.—Old chronic pulmonary tuberculosis.

The candidate was disqualified for active service.

Case 22.—*Physical Findings.*—M. C. L., aged 27, had fine dry râles on cough in left apex to the third rib and the fourth vertebral spine; and in the right apex, above the clavicle. Note was impaired and breathing was bronchovesicular over these areas. Tuberculous infiltration of the areas outlined on both sides was confirmed by roentgenoscopy.

Diagnosis.—Old chronic pulmonary tuberculosis.

The candidate was disqualified for active service.

Case 23.—*Physical Findings.*—E. C. F., aged 30, had fine dry râles on cough at both apexes, with impaired note and bronchovesicular breathing. Râles on the left extended to the third rib, and the fifth vertebral spine; on right, to the second rib and the fourth vertebral spine. Roentgenoscopy confirmed these findings.

Diagnosis.—Old chronic pulmonary tuberculosis.

The candidate was disqualified for active service.

Case 24.—*Physical Findings.*—S. F., aged 36, had fine dry râles at both apexes to the third rib and the sixth vertebral spine. Note was impaired and breathing was bronchovesicular. Roentgenoscopy confirmed tuberculous infiltration in these areas.

Diagnosis.—Old chronic pulmonary tuberculosis.

The candidate was disqualified for active service.

Case 25.—*Physical Findings.*—A. F. B., aged 34, had an area of unresolved pneumonia at the left lower lobe posteriorly, about the size and (apparent) thickness of a man's hand; also a small area of consolidation in the right base posteriorly. Sticky râles, pectoriloquy and bronchial breathing were present over these areas, with friction in the left axilla. Roentgenoscopy confirmed findings, and the complement fixation test was positive for tuberculosis. The Wassermann test was negative. There were no symptoms, and the general condition seemed good. The candidate spoke German and was a reporter on the German front earlier in the war. He was an available man for intelligence service.

Diagnosis.—Unresolved pneumonia due to tuberculosis.

The candidate was disqualified for active service at the Plattsburg training camp, but recommended for special service after cure.

In the following two cases, the candidates were allowed to continue their training at Plattsburg, but were recommended for special service in this country afterward:

Case 26.—*Physical Findings.*—H. B. G., aged 26, had fine râles on cough above the third rib on both sides. Breathing was soft and vesicular. The general condition appeared fine, and there were no symptoms. The candidate was an athlete and competed in running races at the camp the preceding week. Roentgenoscopy revealed: On the right, scattered parenchymatous infiltration to the third rib and the *sixth vertebral spine*, with a questionable area of parenchymatous involvement along the descending trunks; some evidence of fibrosis in the apex; probable pleurisy in the apex, some of which appeared to be interlobar. On the left: scattered parenchymatous infiltration to the third rib and the sixth vertebral spine, with rather much evidence of fibrosis in this region; pleurisy at the base, with diaphragmatic adhesions.

Diagnosis.—Old chronic pulmonary tuberculosis.

The candidate was allowed to continue training, but recommended for special service afterward in this country.

Case 27.—*Physical Findings.*—G. S. C., aged 28, had dry râles and coarse friction at the right apex, and râles below the clavicle to the second rib. Roentgenoscopy revealed a lesion in this area extending to the second rib and involving also the peribronchial area. The candidate was well nourished, and his physical condition was good.

Diagnosis.—Old chronic localized tuberculous lesion.

The candidate was passed for active service at the Plattsburg training camp, but recommended for special service in this country afterward.

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[1] As facilities for roentgen-ray work were not fully completed at the post hospital, the examinations were gratuitously made at the Adirondack Cottage Sanatorium; Dr. E. R. Baldwin kindly gave us a clinical report on some of the cases.

In the following three cases the candidates were found to have localized and well healed lesions, and were passed for active service.

Case 28.—*Physical Findings.*—W. P. H., aged 28, had a cold, but on two separate examinations (after two weeks), fine dry râles were heard above the left clavicle, breathing soft. He had been an athlete, and appeared wiry and strong. There was no cough nor symptoms.

Diagnosis.—Old localized pulmonary tuberculosis.

The candidate was passed for active service.

Case 29.—*Physical Findings.*—H. R. D., aged 28, had fine râles at the left apex, below and above the clavicle and to the third vertebral spine on the left side. Roentgenoscopy revealed cloudiness of the left apex to the second rib.

Diagnosis.—Old healed tuberculosis lesion, left apex.

The candidate was passed for active service.

Case 30.—*Physical Findings.*—T. C. B., aged 29, had fine small dry râles at the left apex to the second rib, and slight impairment of note. Roentgenoscopy revealed two calcified tubercles and slight cloudiness at the apex. The general condition was good. The candidate was strong and well nourished. There were no symptoms.

Diagnosis.—Old localized tuberculosis.

The candidate was passed for active service.

It may be pointed out in regard to the preceding group of cases that they represent a type not usually seen even by the so-called tuberculosis expert, because the men were to all appearances robust and athletic, for the most part; and practically all were free from any symptoms whatsoever that would draw attention to their condition. Their lesions, as a matter of fact, had been overlooked in previous physical examinations, of which each had passed several, before coming before the board: and it is extremely likely that the ordinary wear and tear of civil life would have failed to light up or activate their infection. The cases were in no sense early or incipient; they were not the usual type of incipient case that the tuberculosis specialists see, in which a person has spit a little blood, or lost a little weight, or had a night sweat or two, who has had, in a word, *some symptom*, however slight, which arouses his own suspicions and leads him to consult a physician, with the consequent discovery of a limited active process. They belonged to the relatively large group too large, which the general practitioner would discover if he carefully auscultated the lungs of all patients consulting him for other and trivial ailments. The lesions in every case were sufficiently plain to be revealed by ordinarily careful work.

There can be no doubt that the lesions in every case represented a much earlier childhood infection, which had failed to become acutely active; and it seems likely that the fine dry râles on cough which were elicited represented a subacute recrudescence caused by the intensive training and hard living. Such men from the point of view of their own welfare might and probably would run an unsafe risk if subjected to the exposure, fatigue and privation of active campaigning. They would certainly be an unsafe risk from the point of view of the government.

Finally, it is interesting to compare the percentage of tuberculosis among the candidates (Table 3) with the corresponding figures for the regulars that we examined (Table 4).

TABLE 4.—RESULTS OF TUBERCULOSIS EXAMINATIONS OF REGULARS

	Number	Per Cent.
Enlisted men examined	584	.....
Accepted	578	98.97
Disqualified because of tuberculosis	5	.85
Recommended for special service	1	.17
Found to have tuberculosis	6	1.027

It will thus be noted that among the candidates, the percentage of tuberculosis was 0.41 per cent., while among the regulars examined it was 1.027 *per cent.*, or more than twice as high.

New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application. W. A. Puckner, Secretary.

ARSPHENAMINE.* — $HCl.NH_2.OH.C_6H_3.As:As.C_6H_3.OH.NH_2.HCl+2H_2O$. — The hydrochloride of 3-diamino-4-dihydroxy-1-arsenobenzene, corresponding to 31.57 per cent. arsenic (As).

Actions, Uses and Dosage.—The same as those of salvarsan (see New and Nonofficial Remedies, 1917, p. 45).

Arsenobenzol (Dermatological Research Laboratories).—A brand of arsphenamine.

Manufactured by the Dermatological Research Laboratories, Philadelphia Polyclinic, Philadelphia, Pa.

Arsenobenzol (Dermatological Research Laboratories) 0.4 Gm. Ampules.—Each hermetically sealed ampule contains 0.4 Gm.

Arsenobenzol (Dermatological Research Laboratories) 0.6 Gm. Ampules.—Each hermetically sealed ampule contains 0.6 Gm.

Salvarsan.—A brand of arsphenamine.

Manufactured by Farbwerke-Hoechst Co., New York. U. S. patent No. 986,148 (March 7, 1911; expires 1928). U. S. trademark No. 40,734.

Salvarsan 0.6 Gm. Tubes.—Each hermetically sealed tube contains salvarsan 0.6 Gm. (9 grains).

CHLORAMINE-T. — Sodium Para-Toluenesulphochloramide.—$CH_3.C_6H_4.SO_2NaNCl+3H_2O$, 1:4.

Actions, Uses, Dosage, Physical and Chemical Properties.—The same as those of chlorazene (see New and Nonofficial *Remedies, 1917, p. 140*).

Chloramine-T (Calco).—A brand of chloramine-T.

Manufactured by the Calco Chemical Company, Bound Brook, N. J. No U. S. patent or trademark.

NOVOCAINE. — $CH_2(C_6H_4.NH_2.COO).CH_2N(C_2H_5)_2.HCl$. —The monohydrochloride of para-aminobenzoyldiethyl-amino-ethanol.

Actions, Uses and Dosage.—See New and Nonofficial Remedies, 1917, p. 31.

Manufactured by Farbwerke-Hoechst Co., New York. U. S. patent No. 812,554 (Feb. 13, 1906; expires 1923). U. S. trademark No. 53,072.

Health and Recreation Clubs.—In the Albany public schools a campaign is going forward in the formation of health and recreation clubs among the pupils of the sixth, seventh and eighth grades of the entire school system for the improvement of their health and general well being, as well as to cultivate discipline and other good qualities and make better citizens of them. With the cooperation of the board of health and the entire school organization, including the director of health, Dr. Clinton P. McCord, a complete plan for the formation and conduct of these clubs has been worked out, and in the November number of the *Health Messenger*, the school bulletin, prepared and printed in the schools, this plan, including a form of constitution, a club manual, blanks for reporting, rules for the conduct of meetings, inspections, etc., are fully set forth. The organization of the clubs will be effected by the school nurses and teachers with the cooperation of the principals. At the end of the year, health and recreation club certificates will be awarded to those grades attaining certain standards in health habits and recreational activities. This will induce a wholesome rivalry between the boys and girls and between the different grades. This represents an effort in cooperation among the children and youth of the schools for the production of healthier, better citizens that is timely and is deserving of imitation in the schools throughout the country.

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[*] The Federal Trade Commission adopted the name arsphenamine as the term to apply to 3-diamino-4-dihydroxy-1-arsenobenzene first introduced as salvarsan. The Council on Pharmacy and Chemistry has voted to adopt this abbreviated name in place of arsenphenolamine hydrochloride now in New and Nonofficial Remedies.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

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SATURDAY, DECEMBER 22, 1917

PRACTICAL ECONOMY

Our Journal in common with all other publications is now paying abnormally high prices for paper, supplies, labor and postage. In addition, letter postage has increased 50 per cent. To offset these extra expenses, it is necessary to economize wherever possible. Under the new postage rate the cost for sending the customary bills for Fellowship and subscriptions and later receipts would total over $4,000.00. One half of this can be saved if each Fellow and subscriber will remit without being individually notified by mail. It is believed that many will gladly do this. Under the circumstances, such notification will not be sent on the first of the year as heretofore. In lieu thereof, a remittance slip is inserted in this issue of The Journal. It is hoped that Fellows and subscribers will cooperate in this effort for economy and accept the remittance slip in place of the annual bill sent in previous years, remitting without further notification.

HOOKWORM INFECTION IN DEEP GOLD MINES IN CALIFORNIA

Hookworm disease, like other maladies associated with a microbiotic origin, can arise whenever the etiologic agent can gain entrance into the body by way of the mouth or respiratory passages, or through the skin after it has been cut or abraded. The larvae of the hookworm also can bore through the intact skin if infected dirt happens to come into contact with the body. When persons living in a hookworm infected region go without shoes, the larvae are enabled to gain entrance to the body through the feet. How persistent the danger may be is evident from the statement current that hookworm eggs will *remain* infectious for a year after they have been evacuated from the intestine. This may be the case when the eggs are exposed to the variable climatic conditions on the surface; but hookworm eggs appear to remain infectious for a period even longer than one year when they are deposited in mines, where temperature conditions remain fairly uniform year in and year out. The insidiousness of the parasite is further emphasized by the fact that it "extends its evil influence in a quiet, cumulative manner, and in different directions." As a sanitarian recently expressed it, a man cannot enjoy normal health while the worms are attached to the inside of his intestine and daily sucking his blood. It should be remembered that although a person with hookworms may not be seriously affected himself, there is always danger of his spreading the infection if he commits a nuisance in a place favorable to the development of the eggs.

The problems of the campaign against hookworm disease are rendered difficult by a variety of conditions in part formerly unanticipated, some of which have recently been discussed in The Journal.[1] Dr. J. G. Cumming, director of the Bureau of Communicable Disease, California State Board of Health, and Joseph H. White,[2] sanitary engineer, U. S. Bureau of Mines, in a report on the control of hookworm infection at the deep gold mines of the Mother Lode, California, furnish added indication of the as yet intangible character of the sources of infection, as they occur in mines. Hookworm infection has long been known to be prevalent among miners in many parts of the world. The importance of its eradication from certain mines is shown by the fact that of the gold miners working underground about 40 per cent. contract this insidious infection in some of the mining districts of California, where it appears almost to be endemic. Aside from the hygienic and humanitarian aspects, the economic loss due to absence from work on account of illness and to inefficiency that cannot be directly measured is a large one. Hookworm infection in mines is a form of industrial disease that must be combated by knowledge of both the industry and the disease. Hence the unusual complexity of the problem.

The ultimate source of infection with hookworm in the California gold mines is not known. The immediate source is, of course, in the discharges from the bowels of those infected. The factors contributory to the spread of hookworm infection operate only after the infectious eggs have been set at large by the careless disposition of human excrement. In mines the soil readily becomes polluted. A miner cannot do his work without getting dirt on his hands and clothing; therefore his safety lies in keeping the dirt of the mine as noninfectious as possible. With a mine once infected, the means whereby the miner becomes infected are obvious. An illustration of the subtle possibilities was furnished by the California investigators in their inspections of miners' shoes. As they

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1. Problems in the Campaign Against the Hookworm, editorial, The Journal A. M. A., Nov. 10, 1917, p. 1611; Hookworm in the Mines of China, Nov. 17, 1917, p. 1701.
2. Cumming, J. G., and White, J. H.: Control of Hookworm Infection at the Deep Gold Mines of the Mother Lode, California, Bull. 139, Dept. of Interior, Bureau of Mines, 1917.

remark, hookworm larvae might easily work their way through a fairly good pair of shoes, but the infection would be light. When a mine is known to be infected, a miner should take unusual care to keep his shoes in good repair. At the change house of one infected mine, 107 pairs of miners' shoes were examined, and forty-three pairs, or 40 per cent., were found to be broken or worn so as to permit hookworm infection.

To meet the situation in the Mother Lode mines so as to stop future infection and minimize danger from existing infectious areas, Cumming and White recommend that every employee should be examined for hookworm infection; and every infected miner should be treated until cured. No applicant for work should be employed until he presents a "hookworm certificate" from the California State Board of Health stating that he is free from hookworm infection. All mine workmen should be reexamined about one year from the date of the issuance of the "hookworm certificate." In addition to these personal features the introduction and further extension of suitable sanitary conveniences in the form of toilet facilities is urged. Rats must be exterminated, and the drainage systems improved where necessary. Finally, it is urged by the Bureau of Mines that the miners should be instructed in the causes, nature and prevention of hookworm disease, so that they may know how it is spread, and intelligently subscribe to the remedial measures that are introduced.

THE STATISTICAL EVIDENCE OF CANCER INCREASE

There is no doubt that the number of deaths recorded as due to cancer has shown a marked increase in the last few decades in all cities and countries for which reliable statistics are available. A sharp difference of opinion exists, however, as to whether the reported mortality represents a real or an apparent increase in the disease itself. It is evident that improvements in diagnosis must account for a part of the reported increase, that deaths now recognized to be from certain forms of cancer were earlier not diagnosed as such, but were reported under deaths from "old age" or other ill defined or unknown causes. It is when statisticians attempt to determine the relative importance of this factor in swelling the list of cancer deaths that they encounter statistical difficulties, and split into two groups: those who hold that cancer mortality is increasing more or less rapidly throughout the whole civilized world, and those who hold that the increase is only apparent, not real. The latter group has received a powerful ally in Professor Willcox,[1] who discusses the alleged increase of cancer in a recent weighty monograph.

Willcox first points out that of the previous investigations of this question, two stand in a class by themselves: the study by King and Newsholme in 1893 of data mainly derived from the mortality records of Frankfort, Germany, and the more recent study (1915) by Hoffman of cancer throughout the world. It is significant of the difficulties attending such inquiries that these two studies reach diametrically opposite conclusions.

Willcox analyzes the essential data comprehensively and subtly. Perhaps the most generally interesting portion of his paper is the reexamination of the Frankfort figures, with its extension of the period covered from thirty years (1860-1889) to fifty-four years (1860-1913), and the inclusion of 9,000 deaths instead of 3,000. The Frankfort tables and diagrams show that during this period there has been no significant change in the small mortality from accessible cancer of men, and that there have been irregular changes followed by a remarkable uniformity in the mortality from accessible cancer of women. Almost all the increase occurred in the mortality from inaccessible cancer. Study of this important material therefore indicates in Willcox's opinion that the apparent cancer increase in Frankfort was probably due entirely to improved diagnosis.

Another conclusion reached is that probably not less than one tenth of the reported increase of cancer mortality is due to changes in the sex and age composition of the population. With reference to the different sex incidence he says:

> Cancer mortality is lower but increasing faster among men than among women. Both differences may be due to the fact that among men the organs chiefly attacked by cancer are inaccessible, while among women they are accessible. Hence the scope for improving the diagnosis of cancer among men was and is much wider.

Two important pieces of evidence drawn from American statistics also may be mentioned. The deaths ascribed to unknown or ill defined causes in the American registration states (of 1900) decreased between 1900 and 1915 to one tenth of the initial number. "If these deaths no longer ascribed to ill defined or unknown causes were distributed over the other causes in a random way, the transfer to cancer accounted for about one ninth of the increase in the reported mortality from that disease." This is certainly not an overstatement. Similarly the deaths ascribed to old age in the same American registration states decreased between 1900 and 1915 to a little more than two fifths of the initial figures; the death rate from this reported "cause" was lowered still more, to less than one third. There can be no doubt that a considerable proportion of the apparent cancer increase—Willcox puts it as at least one eighth—was due to transfer from the old age column to the cancer column.

Willcox points out also that the reported negro cancer mortality is lower than the white, but is increasing more rapidly, seeming to indicate here also the influence of the relative correctness of diagnosis. He also notes that the increase in reported appendicitis mortality in England and the United States is parallel with the increase in reported cancer mortality, and intimates that both may be due entirely, as they certainly are in large part, to the improvement of diagnosis. The whole argument leaves one in a frame of mind tentatively to accept Willcox's conclusions:

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[1] Willcox, F. W.: On the Alleged Increase of Cancer, Quarterly Publications of the American Statistical Association, 1917, 15, 701.

> The cumulative evidence that improvements in diagnosis and changes in age composition explain away more than half and perhaps all of the apparent increase in cancer mortality rebuts the presumption raised by the figures, and makes it probable, although far from certain, that cancer mortality is not increasing.

THE NATURE OF MUSCULAR CONTRACTION

The theories as to the nature of muscular contraction have undergone profound changes since the opening of the twentieth century. Only a few years ago the working mechanism was still freely compared with a steam engine in which the direct combustion of fuel leads to the liberation of energy in the form of heat and motion. This analogy between the muscle and a heat engine received its greatest setback in the demonstration that muscular contraction is still possible in the absence of oxygen, without which true combustion promptly fails. As a sequence came the views that somehow very unstable energy-yielding compounds are built up in the contractile tissue, and that these disintegrate somewhat like the reaction of an explosive so as to do work. The chemical processes involved were vaguely conceived to consist essentially in "the building up of elaborate, unstable and oxygen-charged molecules, by the processes of so-called 'anabolism,' into the mystical complexes of irritable protoplasm." From the latter, energy was supposed to be discharged when the proper stimulus set off the charge, so to speak.

It is obvious that there must be something in a resting muscle which possesses some sort of potential energy; for when a muscle contracts, tension is developed and external work is done if the tension is made use of in processes requiring expenditure of energy. The energy of tension may also be allowed to appear in the form of heat. The nature of the processes involved have been greatly elucidated in recent years by the work of the Cambridge school of physiologists in England, notably Fletcher, Hopkins and Hill.[1] Today we know that the actual contractile process is not associated directly with the giving off of carbon dioxid or with the consumption of oxygen. Lactic acid is formed; but the chemical change up to this stage is not an oxidative process. What oxygen does is to remove by oxidation or otherwise the lactic acid produced by contraction. Precisely how this happens is as yet a mystery, made more obscure by the fact that outside the muscle, in the circulation, for instance, lactic acid is not directly oxidizable at physiologic temperatures. Nevertheless the dissipation of the lactic acid that is an accompaniment of the contractile process is highly important, however it may be accomplished; for lactic acid is the most obvious determining cause of the signs of fatigue; and recovery from fatigue depends in no small measure on the removal of this acid compound. Somehow, with the destruction or removal of the lactic acid, the energy of the muscular system is restored.

From this standpoint there are two chemical events involved in muscle incident to its function. The act of contraction itself is now known to be an anaerobic process independent of oxygen, but accompanied by the formation of lactic acid. In the second stage of functioning, whereby the lactic acid is removed again, oxygen plays a prominent part. We may quote Fletcher and Hopkins' formulation of these phenomena. The special processes, they state, which, when they occur within a muscle fiber, culminate in a contraction, make no call on an oxygen supply; they proceed anaerobically. The oxidations which are always associated with muscular activity are separated in time from that moment in which mechanical energy is liberated. They occur immediately afterward, and are concerned not with the introduction of the mechanical act, but with a restoration to the status quo ante. They are concerned not with stimulation but with recuperation.

Is the production of lactic acid to be regarded, then, as an undesirable incident and the substance itself as a toxic product, destined to be eliminated or destroyed as speedily as possible? Certainly not in the light of the newer conceptions, in which the acid serves as an essential agent in the machinery of contraction itself. To quote the Croonian lecturers again, the development of acid, with free hydrogen ions, in the neighborhood of colloidal fibrils gives the condition for contraction, either by increasing the molecular tension along longitudinal surfaces or by the process of imbibition, causing a resultant increase of tension in the fiber. The removal of lactic acid under the influence of oxygen will give relaxation, as the original state of tension in the fibril is restored.

The Cambridge investigators conclude that in the muscle, which, after all, forms the chief seat of metabolism, the acid intermediary product appears at such a stage and place as to have more than a purely chemical significance. It marks, on the one hand, an obligatory stage in a particular set of successive chemical reactions; but, on the other hand, it has here its special rôle to play in connection with the muscle machinery. In the evolution of muscle it would appear that advantage, so to speak, has been taken of this acid phase in carbohydrate degradation, and that by appropriate arrangement of the cell elements the lactic acid, before it leaves the tissue in its final combustion, is assigned the particular position in which it can induce those tension changes on which all the wonders of animal movement depend.

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[1] An account of some of this development is given by Fletcher, W. M., and Hopkins, F. G.: The Respiratory Process in Muscle and the Nature of Muscular Motion, Croonian Lecture, Proc. Roy. Soc., B, 1917, 89, 444.

Such conceptions carry us far away from the earlier views as to the mechanism of muscular contraction. We can no longer look on the muscle as a simple human heat engine. We are dealing in muscular work with something of a physical as well as a chemical nature. The potential energy must be in the form of surface energy or osmotic energy or both; in any event it is not directly associated with an oxidative chemical reaction of the familiar sort. In the words of Fletcher and Hopkins:

> With an understanding that the relatively permanent physicochemical system of the muscle can, without itself undergoing chemical modification, carry changes of potential as a result of changes in its physical configuration, it becomes easier for us to realize that the foodstuffs, or at least that sugar, may be the direct source of the contractile energy. Placed in the right locality within the muscle, sugar, by a nonoxidative yield of acid at the right moment, and by a subsequent oxidation of this at another right moment, can yield its total energy in a manner exactly suited to serve the peculiar machinery in which, so to speak, it finds itself.

NEW EVIDENCE REGARDING THE FAT-SPLITTING FERMENT OF THE STOMACH

Where does the digestion of fats begin in the alimentary tract? Until only a few years ago the digestive cleavage of these foodstuffs was supposed to be a function of secretions poured into the gastro-intestinal canal somewhere beyond the stomach. An occasional investigation, it is true, had revealed the existence of small quantities of fatty acids in the contents of the latter organ after the ingestion of considerable fat; but it was not until the unexpected findings of Volhard published in 1900 regarding the existence of a fat-splitting enzyme in the stomach that the possibility of any significant gastric digestion of fats was taken seriously into consideration. A decade later von Fürth,[1] in reviewing the literature on the probable first phase of fat digestion, concluded that doubtless the stomach contains a lipolytic ferment, and that physiologically the cleavage of fats begins at this point; but he believed that the lipolytic power of pure gastric juice is distinctly less than was earlier assumed. Von Fürth attached no particular physiologic importance to possible lipolytic processes in the stomach.

The question here at issue became greatly complicated by the realization, now grown to a firm conviction, that after the taking of foods of various sorts — and particularly after a meal of fatty food — it is easy to have a reflux of duodenal contents into the stomach. Obviously the pancreatic and intestinal fat-splitting enzymes may thus gain entrance into this organ. Is this, then, the true explanation of the source of the reputed gastric lipase? The failure of the earlier workers to rule out the regurgitation of pancreatic juice from the intestine as a source of lipase in the stomach, coupled with the low values for gastric lipase reported for the gastric juice by those who have examined purer specimens of the secretion, has thrown doubt on the actual existence of such an enzyme as a product truly elaborated by the gastric membrane.

It would not be surprising to find in the stomach secretion traces of any familiar enzyme occurring in abundance elsewhere in the body. Enzymes that find their way into the blood stream are known to "escape" into the gastric juice. The circulating fluids of the body do, in fact, contain some lipase. But if we may judge by the new observations of Hull and Keeton[2] at the Northwestern University Medical School, Chicago, this will not explain the appearance of gastric lipase, which they find in pure gastric juice in a concentration five or six times that in the succus entericus and the blood serum. They searched for lipase in gastric juice collected so that no contamination with intestinal or pancreatic products was possible. In the course of the investigation it developed that gastric lipase is a very unstable substance, a fact which at length explains the failure of many who have searched for the enzyme to find it. The fasting and acid-free juice always contains an appreciable concentration of lipase; it is, however, sufficiently sensitive to alkali or acid to be destroyed by a fifteen minute exposure to hydrochloric acid of the concentration (0.2 per cent.) frequently found in the stomach contents. The enzyme may be recovered from the stomach showing low acid secretion by immediate neutralization of the juice, and from stomachs in high secretory activity, if the acid is reduced by the addition of protein.

The Chicago investigators come to the conclusion that lipase is a true gastric secretory product, rather than an accidental "contamination" of the stomach contents. The persistence of the lipase in the stomach, they maintain, certainly seems to be a function of the free acidity. An acidity of 0.2 per cent. of hydrochloric acid appears to be about the upper limit for the recognition of much lipase, but in clinical observation this free acidity is not soon reached in the normal stomach under the usual diet conditions with average amounts of protein present to hold the acid. It is highly probable, therefore, that before the acid can accumulate to the point at which it can more than saturate the proteins, the lipase enzyme will have an opportunity of doing appreciable work, as the ptyalin of the saliva certainly does and as administered trypsin must do also, according to the investigation of Long and Hull.[3] At any rate, the possible importance of gastric lipolytic activity in the sum total of alimentary digestive performances is once more deserving of respectful consideration.

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[1] Von Fürth, O.: Chemistry of Metabolism, translated by A. J. Smith, Philadelphia, 1916.

[2] Hull, Mary, and Keeton, R. W.: The Existence of a Gastric Lipase, Jour. Biol. Chem., 1917, 32, 127.

Current Comment

WINTER POLIOMYELITIS

The relative rarity of winter outbreaks of poliomyelitis is one of the chief reasons why officers of the United States Public Health Service have recorded in detail an epidemic occurring in Elkins, W. Va., in 1916-1917.[4] The investigation in West Virginia has especial significance in showing the great importance of unrecognized cases and of carriers in the spread of the disease. The investigators were led to believe that types of nonparalytic poliomyelitis exist in which the symptoms are referred in the first instance to the digestive tract. These cases of digestive disturbance of slight severity are very likely an important source in the spread of poliomyelitis infection. The facts discovered in this outbreak are considered to emphasize the importance of human contact in spreading infection. No connection was found between general cleanliness, insect prevalence and similar factors, and the incidence of the disease. Indirect contact through adult passive carriers is considered as particularly important. As a measure of administrative control, the authors lay stress on the minimizing of general intermingling of adults and children, especially at times when poliomyelitis is prevalent.

THE FATE OF STRYCHNIN IN THE BODY

Strychnin has so long been employed in therapy, and has also been so conspicuous as a dangerous poison, that the question of its precise behavior in the organism has attained considerable prominence. Despite this, much of the essentially desirable information on the subject has been a mass of contradictions and confusion. This statement applies in particular to the fundamental questions as to how the alkaloid is excreted from the body and whether it experiences any alteration, deposition or destruction in its passage through the organism. From a medicolegal standpoint it has further been of decided interest to ascertain whether strychnin disappears in the course of postmortem changes attended with putrefaction; for on the answer to this hinges in no small degree the possibility of our identifying the poison in the body in which it has wrought its havoc. These problems have been subjected to renewed experimental study in the pharmacologic laboratory of the Cornell University Medical College, by Hatcher and Eggleston.[5] They found that total amounts of strychnin equal to several times a single fatal dose may be administered to experimental animals in fractional doses on each of several successive days without causing permanent injury. From this clearly established fact it must be assumed that the poison is promptly disposed of in some way. It may come as a surprise to many to learn that only a small percentage of repeated toxic doses of strychnin can be recovered from the urine. Whatever is found in this excretion makes its appearance very soon after the administration of the substance. None can be recovered a day after the cessation of the dosage. The poison, administered parenterally without lethal effects, cannot be found in the feces. These facts, evincing the failure to detect in the excreta the bulk of administered strychnin, thus point to its deposition or destruction in the body. The latter outcome seems most probable in view of the practical failure of Hatcher and Eggleston to recover the alkaloid from the tissues even after administration of very large amounts, provided death did not ensue too speedily. The often made statement that strychnin is not decomposed during putrefaction appears to be quite untenable. These findings, based on careful experimentation, are believed to clear up some of the confusion in the literature. They may not render the task of the toxicologic chemist easier in his search for evidence of strychnin in the body; but they throw light on the tolerance of the organism and its capacities for defense against harm.

CITRIC ACID IN THE URINE

The announcement has just been made by Amberg and McClure[1] that normal human urine contains citric acid. It is asserted that the amount excreted in the course of twenty-four hours is quite appreciable—"enough to play a modest rôle in the acid-base economy of the organism." One naturally thinks of food sources for the excreted product. Citric acid is found in such fruits as oranges and lemons, and it is stated to occur to the extent of from 0.05 to 0.1 per cent. in human and cow's milk. Feeding experiments with citrates make it less probable, however, that the citric acid in the urine should come from the material ingested, since the latter seems to be destroyed with considerable ease in the body. In view of the alleged constant occurrence of citric acid in another product, milk, that fraction now said to be present in the urine may likewise have an endogenous origin. The evidence furnished by the Chicago biochemists regarding the output of citric acid is indirect and therefore not absolutely convincing. Pending more rigorous proof, speculation as to its origin may therefore well be suspended.

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[3] Long, J. H., and Hull, M.: Jour. Am. Chem. Soc., 1917, **39**, 162.

[4] Leake, J. P.; Bolten, Joseph, and Smith, H. F.: Winter Outbreak of Poliomyelitis, Pub. Health Rep., 1917, **32**, 1995.

[5] Hatcher, R. A., and Eggleston, Cary: The Fate of Strychnin in the Body, Jour. Pharmacol. and Exper. Therap., 1917, **10**, 281.

[1] Amberg, Samuel, and McClure, W. B.: The Occurrence of Citric Acid in Urine, Am. Jour. Physiol., 1917, **44**, 453.

War Cripples.—The attitude of the public toward the returned soldier will do much to make or mar the success of work with war cripples. The cripple returning from the front deserves the whole hearted gratitude and respect of the nation, but to spoil and pamper him is an ill-advised way of meeting the obligation.—McMurtrie, Columbia War Papers

Medical Mobilization and the War

RED CROSS GETS NOBEL PRIZE

The International Red Cross Committee of Geneva has been awarded the Nobel Peace Prize for 1917, and by unanimous consent of the custodians of the special fund, the prize of 1916, which was not bestowed last year, was added to this award.

WOUNDED IN ACTION

The War Department received advices, December 11, from General Pershing, that Lieut. Edgar W. Young, M. R. C., McKinney, Va., a graduate of Baltimore Medical College, in 1911, had been seriously wounded in action.——Advices from France, December 16, state that Lieut. H. Cotter Boyle, M. R. C., of Luzerne, Pa., a graduate of Temple University, Philadelphia, in 1914, had been seriously wounded, December 7, while on duty with the British forces.

MEDICAL RESERVE OFFICERS AT WEST POINT

Major W. H. Haskin, M. R. C., U. S. Army, writes from West Point that the entire medical staff at the Military Academy are Medical Reserve Corps men. The personnel is as follows: Major W. H. Haskin, Lieuts. J. F. Grattan, J. D. Kelly, Sutherland Miller and Kenneth Phelps; Dental Corps, Lieutenants Bachman and C. Van de Water; veterinarian, Lieutenant Churchill.

MOVING PICTURES AND OTHER ILLUSTRATIONS FOR THE ARMY MEDICAL DEPARTMENT

The Surgeon-General has authorized the establishment at the Surgeon-General's Library and Army Medical Museum, Seventh and B Streets, S.W., Washington, D. C., of a repository for moving pictures, slides and photographs of camp and other activities related to the work of the Medical Department. These illustrations are to be made available for instruction purposes in camps, cantonments, etc., and will be lent for use in conjunction with lectures and other courses of study in medical schools, training camps and cantonments. Donations of such illustrations are solicited.

MILITARY ROENTGENOLOGY CLASS ORGANIZES

The class in military roentgenology in the course conducted by Capt. E. S. Blaine at the Cook County Hospital, Chicago, has arranged for a permanent organization. The class is composed of thirty physicians from fourteen different states: Iowa, Indiana, Tennessee, Florida, Wisconsin, Texas, New York, Illinois, Alabama, Minnesota, Ohio, Nebraska, Kentucky and Michigan. The work is not limited to military roentgenology, but each member is required to do radiography, fluoroscopy, therapy, developing and diagnosis. In the permanent organization Lieut. Thomas D. Cantrell of Bloomington, Ill., was chosen president, and Capt. D. W. Young of Paris, Ill., secretary.

VOLUNTEER SERVICE IN SOME BRANCHES FOR MEN REGISTERED UNDER SELECTIVE SERVICE

Under date of December 17 the Provost Marshal issued to the governors of the various states an announcement that men of draft age may still volunteer for certain branches of the service. White men only will be accepted and they may enlist only in the Infantry, Signal Corps, Medical Corps and Quartermaster's Department. All men enlisted for the Medical Department will be sent to the Medical Officers' Training Camp at Fort Riley by local boards west of the Mississippi, and to the Medical Officers' Training Camp at Fort Oglethorpe, Ga., by boards east of the Mississippi. Transportation and subsistence expenses to the camps are to be furnished volunteers by the local boards.

PAMPHLETS ON VENEREAL DISEASES

The Illinois Vigilance Association has prepared for distribution several pamphlets on venereal diseases which it offers to send free of charge, transportation prepaid, to any Army officer or medical officer who will ask for them and use them carefully among the soldiers. It also offers to send single copies free of charge to any physician on receipt of a self-addressed, stamped envelop. The pamphlets consist of one entitled "For Our Daughters" by Dr. Charles Burlureaux of the French Society of Sanitary and Moral Prophylaxis; one entitled "For Our Sons" by Professor Alfred Fournier; three Great Army Records by Wirt W. Hallam, and a pamphlet containing Lord Kitchener's "Instructions to Soldiers" and an article by Prof. William T. Belfield. The address of the Illinois Vigilance Association is 58 West Washington Street, Chicago.

WAR REVENUE LAWS AND THE DISPENSING OF ALCOHOL BY PHYSICIANS

Under the War Revenue Act of Oct. 3, 1917, which went into effect, Dec. 1, 1917, hospitals, sanatoriums and physicians who use alcohol for nonbeverage purposes are required to file a bond and obtain a permit from the revenue authorities. This law is being administered in connection with the Food Control Act of Aug. 10, 1917, and applies to every one handling alcohol. Heavy penalties are provided for noncompliance with or violation of the law. Physicians should make themselves conversant with the requirements if they have not already complied with the law. Druggists may not sell to physicians, hospitals or sanatoriums nonmedicated alcohol unless the physician, hospital or sanatorium has filed the required bond and obtained a permit. Druggists may, however, sell alcohol to physicians or the general public in any quantity up to 1 pint provided it is rendered nondrinkable by a prescribed proportion of the following substances: phenol, formaldehyd, mercuric chlorid, hydrochloric acid, tannic acid, alum, lysol or liquor cresolis compositus. A druggist having a permit may fill a physician's prescription or a physician with a permit may dispense prescriptions containing alcohol provided the prescription contains other drugs sufficient to render the alcohol unfit for beverage purposes. To be able to purchase nonbeverage alcohol physicians, hospitals and sanatoriums must, in addition to having filed the bond and obtained the permit, order such alcohol on a form prescribed by the law. The penal sum of the bond must equal $3 for each proof (50 per cent.) gallon of alcohol expected to be on hand or in transit at any one time. The bond must be that of a surety company, or a personal bond signed by two sureties approved by the collector of internal revenue, or may be a personal bond secured by a deposit of liberty or other government bonds. More complete information may be obtained from the district revenue officers.

SUMMARY OF HEALTH CONDITIONS IN CAMPS OF UNITED STATES FOR WEEK ENDING DEC. 14, 1917

National Guard

With the exception of the Thirty-Fourth (Camp Cody), Thirty-Fifth (Camp Doniphan) and Fortieth (Camp Kearny) divisions, but few new cases of measles are reported from National Guard camps. In each of the divisions mentioned, with the exception of the Fortieth, the number of new cases is small as compared with the number reported for last week. In the Fortieth Division the number of new cases is 330 as compared with 279 for the previous week.

Pneumonia following measles is also rapidly decreasing in amount in all but three of the divisions in which measles has been epidemic. In the three divisions referred to, Thirtieth (Camp Sevier), Thirty-Fourth (Camp Cody), and Thirty-Ninth (Camp Beauregard), an increase in the number of cases is noted, although the total number of new cases reported in each division is not high.

For meningitis the number of new cases has increased in but two camps of the National Guard. The Thirty-Fifth (Camp Doniphan) Division reports six new cases as compared with two for the previous week and the Thirtieth (Camp Sevier) Division reports six as compared with one for the previous week. The number of new cases reported in the Thirty-Sixth (Camp Bowie) Division has decidedly decreased. The highest number of new cases reported in any other division of the National Guard is three.

National Army

In the National Army a marked increase has occurred in the number of new cases of measles in the Eighty-Seventh (Camp Pike) and Ninetieth (Camp Travis) divisions, and a slight increase in the Eighty-Ninth (Camp Funston) Division. In all other divisions the number of new cases of measles reported is insignificant.

Pneumonia conditions in all divisions of the National Army have decidedly improved during the week, except in the Ninetieth (Camp Travis) Division, in which an increase of thirty-six new cases is reported over the report of last week.

As regards meningitis, the Eighty-First (Camp Jackson) Division reports a marked increase in the number of new cases over the report of last week. The outbreak of this disease in the Eighty-Ninth (Camp Funston) Division continues to decline, but eight new cases having been reported during the week. The highest number of new cases reported in other divisions of the National Army is five. Seven divisions of the National Army reported new cases of this disease during the week.

NEWS OF THE BASE HOSPITALS

Base Hospital No. 22, Milwaukee, Wis., has been mobilized under the command of Col. Thomas Jellis Kirkpatrick, at the Light Horse Squadron Armory in Milwaukee. This unit is fully equipped, the equipment containing full hospital equipment for a 500 bed hospital, including 500 iron beds, 1,500 blankets and all accessories needed, a complete indoor telephone equipment, a complete supply of medicines, surgical dressings and surgical instruments, special eye, brain and jaw instruments, a $7,500 roentgen-ray apparatus, including 500 roentgen-ray plates, a giant magnet, complete dental outfit, three White ambulances completely equipped, one 3-ton White motor truck, one Hudson seven-passenger officers' car, one motorcycle, a fully equipped kitchen outfit, and a "Kinyoun" portable bed disinfector capable of sterilizing ten bed mattresses at one time.

Most of the professional staff have received training at medical schools and army camps. Major Curtis Evans, the director of the base hospital, has been for the last three months at the neurologic school at Philadelphia taking the course in brain surgery. Captain Beffel and Lieutenant Lillie were there with him. Major Otho Fiedler has taken the Carrel course in New York and is now at the Rockefeller Institute taking a laboratory course. Captain Gilchrist is at Fort Travis with the base hospital there. Lieutenants Eagan, Rueth and Fitzgerald are at Fort Riley. Lieutenant Foerster is taking a course in New York City. Lieutenants Senn and Brook are at Waco, Texas.

In the absence of Director Evans, Major Robert Curtis Brown has been acting director. Capt. Oscar Lademan has been doing special work in examination of heart and lungs at Fort Oglethorpe. Lieutenants Campbell and Siewart have been taking special courses in dental surgery. Major Ruhland, Captains Ivy and Harry Gradle will continue in their present service.

The following is the personnel of the hospital: Majors Curtis A. Evans, director, chief surgeon; Robert Curtis Brown, chief of medical service; Otho Fiedler, staff surgeon; Capts. Henry B. Hitz, staff surgeon, ear, nose and throat; John W. Means, oral surgeon; Herbert Walker, ophthalmology; Philip F. Rogers, staff surgeon; Eugene A. Smith, staff surgeon, roentgenologist; John M. Beffel, Francis A. Thompson and Oscar E. Lademan, staff physicians; Lindsey Dennison, quartermaster; Lieuts. Ralph T. Gilchrist, chief of laboratory; Allen Sivyer, assistant in laboratory; Orville R. Lillie, Francis B. McMahon, Ulrich Senn, William J. Egan and Edward Rueth, staff surgeons; Harry Robert Foerster, Delparde W. Roberts, Jeffry J. Brook and George M. Fitzgerald, staff physicians; Stephen Campbell and George B. Siewart, dentists; Paul B. Jenkins, chaplain, and H. I. Rice, first sergeant.

The University of Minnesota Unit, Base Hospital No. 26, is mobilizing on the university campus under orders from the War Department, and will soon be ready to entrain for Fort McPherson, Ga., when the date for departure is definitely settled. Advance notice had been received asking the unit to be ready for mobilization, and the order to mobilize found the hospital fully equipped and prepared with the quarters for the men ready when they were told to report. This unit is a combination of the University of Minnesota and the Mayo Clinic. The commissioned officers include Majors Arthur A. Law, director and chief surgeon of the university, and S. Marx White, chief of medicine; Capts. E. C. Moore, Los Angeles; Robert D. Mussey, Carl Fisher, opthalmology and otolaryngology of the Mayo Clinic, and John Bentler, quartermaster; Charles A. Reed, orthopedics, Angus Morrison, neurologist; Gilbert J. Thomas, urologist; Harry B. Zimmerman and John Staley of the university; Lieuts. Alexander B. Moore, roentgenologist; W. W. Bissell, chief of laboratory; David M. Berkman, James M. Hayes, Fred Rankin and Thaddeus L. Sclapka of the Mayo Clinic, and Moses Barron, Archibald Beard, O. M. Klingen, Thomas Snodgrass, Gordon M. Clark and Taylor B. Smith of the university.

NEWS OF THE TRAINING CAMPS

Fort Riley

The event of the past week was the visit to the camp last Saturday of Surgeon-General Gorgas. He was accompanied by Col. D. C. Howard, M. C., U. S. Army; Major Victor C. Vaughan, M. R. C., and Prof. William Welch of Johns Hopkins University Medical School. The morning was spent in Camp Funston, inspecting the camp with special reference to contagious diseases and the inauguration of methods for their prevention. Particular attention was given to meningitis and pneumonia. The afternoon was devoted to the medical officers training camp. At 3:30 all the officers, instructors and students met in the Y. M. C. A. auditorium. General Gorgas was introduced by Colonel Bispham, and spoke to the officers on the work of the Medical Corps. Short talks were also made by Major Vaughan and Professor Welch.

An isolation camp has been established between Fort Riley and Camp Funston, with about 1,600 men. A new isolation camp on the western edge of the reservation is now being built with a capacity of 2,500. To this camp are sent all newly arrived men and all old men coming back on leave. The work being done here is evidently recognized, as the Surgeon-General has just asked for three men from the contagious disease squad to be sent to Camp Doniphan for meningitis field work.

Winter has descended on the camp with a rush. After long weeks of unbroken Indian summer, we had come to believe that the much dreaded Kansas winter was a myth and that a heavy overcoat was an unnecessary luxury. But the last week has undeceived the most skeptical. Thursday was gloomy, with a strong wind gradually working around into the North. Friday brought a few snowflakes and a temperature of about 10 degrees above zero. Saturday night was 5 degrees below. Since then, the temperature has depended on the brand of the thermometer and the imagination of the observer. Fifteen degrees below zero was reported one night, but this has not been officially confirmed. For the past six days the mercury has hovered near zero most of the time; but the work of the camp has gone on without interruption. Drills, horseback riding and maneuvers have been held the same as usual. Little personal inconvenience has been experienced. The company barracks had all been lined and boarded up in anticipation of cold weather, while the officers' quarters had been weather-proofed largely according to the judgment or ingenuity of the occupants. Stoves and an abundance of coal kept barracks, quarters or mess halls comfortable. Sheeplined coats, knit helmets, fur caps and heavy gloves have suddenly become popular. In spite of zero weather, windows are opened wide at night, the officer of the day inspecting all barracks at regular intervals each night to insure adequate ventilation. The health of the camp has been excellent, only two or three being on the sick list out of nearly 550 officers. In spite of the cold weather, the largest number of officers on the sick report any one day was three, on two days there was one each and on one day two, making a total of fifteen cases for seven days, or an average of two per day, 0.36 per cent., or 3.6 per thousand. Evidently, the medical officers' training camp would be an extremely poor place for any man to start in the practice of medicine.

The first instalments of student officers for the third training camp are now coming in, about 150 having arrived during the past week. Cold weather has made all trains late, so that some of the men reached camp after dark or even late at night. Company 14 has been filled and Company 15 started. These new companies are in the barracks formerly occupied by Companies 1 and 2. The regular schedule for Company 14 started Monday. Company 15 will begin its class work next Monday. The contrast between civilian life in steam-heated houses and office buildings and camp life in barracks is much greater to the men reporting for duty now than to those who began their work in the summer. But the new men are settling down to their work in dead earnest.

White collars are soon replaced by flannel shirts, and caps by field hats. While the cold weather has made drilling and hiking heroic experiences for men fresh from civilian life, there is no shirking. The new officers are taking hold with determination. Of course, the usual jokes are being attempted. Several newly arrived officers have visited the quartermaster, earnestly asking where they can secure the "O. D. Regulation Officer's Umbrella." Some have reported to the adjutant's office and asked for "butter checks," while a number have made careful search all over camp for "Colonel Latrine's headquarters" so that they might report for fatigue duty as directed. But these stereotyped camp jokes are accepted good naturedly as a part of the game, and in a few weeks the new "Docs" have ceased to be rookies, and are ready to help take in those who have come in since their own arrival.

THE FUNCTION OF ORTHOPEDIC SURGERY IN THE WAR

The Philadelphia County Medical Society in its meeting of Nov. 28, 1917, heard several papers descriptive of the work of the orthopedic section of the Surgeon-General's Office and the plans for reconstruction after the war. Major David Silver, Pittsburgh, vice chairman, orthopedic section, Surgeon-General's Office, states that in organization of the work of orthopedic surgery the Surgeon-General has been guided very largely by the experience of the English army and has, in addition, paid special reference to: (1) the securing of a sufficient personnel; (2) provision for an ample number of beds, and (3) the reception of the wounded soldier as early as possible in the division to which he belongs and with the least possible change of dressing. There are now about eighty-five men in training in Europe, sixty men assigned to camps in this country, and eighty or more placed in courses of instruction, with a considerable number still unassigned. Especial attention has been paid to the training of men who did not have a sufficient fundamental knowledge of orthopedic surgery. For these men the plan of instruction consists of intensive courses of six weeks' duration, work in the cantonment hospitals under qualified orthopedic surgeons, and later, work abroad as assistants to qualified men.

Efforts are also being made to instruct the medical men generally, the line officers, and the enlisted men themselves in the care of the feet, the handling of minor joint injuries, and the simpler injuries of the back.

In the plan for the organization of the work in France, the Surgeon-General has arranged for the establishment of an orthopedic section in each hospital, and this will be placed beside the fracture section in order that the same brace shop and curative workshops may be used for the two. From 5 to 7.5 per cent. of the wounded are expected to be returned to this country, and these will be placed in the general reconstruction hospitals that are being planned in the various sections of the country. Here the reeducational work will be carried out.

The Surgeon-General has established a laboratory for the study of the various problems connected with artificial limbs. There will not be much difficulty in the supplying of artificial legs to the soldiers, as this has reached a high degree of perfection in the hands of the American manufacturer. The substitute arm is naturally, however, not so satisfactory on account of the complicated demands that are made on it when we attempt to supply the functions performed by the normal hand. So far it has been found more satisfactory to use some form of mechanical hook for labor, reserving the hand for social use.

Orthopedic surgery is concerned also with the industrial problem, which is as important as that of the military. The comparison of statistics clearly demonstrates the great importance of applying the same plan that has proved so valuable in military work to industrial work as well. In war we may have a great many casualties in one day, while in industry the number of daily accidents is small; this loss, however, is continuous, so that the economic loss of industrial accidents in the long run assumes an equal importance to the casualties in war. In view of the probable industrial struggle that will follow immediately after the conclusion of the present war, it is of vital importance that the reeducational plan be so made as to embrace both the military and the industrial need.

The Civic Aspects of Orthopedic Surgery in the War

Major Henry R. Hayes analyzed the problem of reconstruction. While this might not seem to be a large problem, analysis reveals its extent. A man returned disabled for service will probably need, in addition to the surgical treatment overseas, further surgical and curative treatment at home. His medical and mental limitations with relation to the character of his previous occupation in civil life must be carefully studied by the medical and vocational staff to determine the specific training he shall have. Surgeons and physicians must tell us what men with given disabilities cannot do. Experts in vocational training must advise what trades to teach the disabled. Employers and employees must advise us on the local trade and labor markets. There must be fundamental organization, that employers and employees may not be asked to take unreasonable risks; and there must not be discrimination against the crippled. A man reconstructed and reeducated must be presented to society, equipped to earn the pay of a given job.

Exemptions under the National Army draft law for physical disabilities have been astonishingly large, and not a small number of such disabilities are orthopedic in character. This situation is being studied by one department of the government, that such disabilities in the younger and future generations may be minimized. Reconstruction work, therefore, will require the close cooperation of Army federal bureaus, and state and local official and civilian organizations.

Dr. G. G. Davis, member of the Orthopedic Advisory Council, thought it strange that a great war should have been necessary to arouse the people to a sense of their responsibility. We speak, for instance, of the military reconstruction, the importance of the reconstruction in industrial enterprises; but the purely civil cripple is not yet receiving a fair chance. All through our community there is a class of cripples that cannot receive treatment because of the lack of provision. This problem has occupied the attention of the orthopedic profession but it seems to have required the war to make the people appreciate its importance.

Dr. A. Bruce Gill believed that it would be difficult to find experts in teaching trades to cripples, since the work is in its very beginning. No evil is unmixed, and the opportunity for the cripple from this time will be such as it never was before. Only four states in the Union have given any state attention to this work. There will be required cooperation and study to equip and find industrial positions for the cripples that will be returned to us after the war.

Dr. Charles K. Mills noted that the War Department is sending to Philadelphia military men who are receiving special training in certain courses of instruction; but these different classes have not been coordinated. There are a neuropsychiatric class, a neurologic surgical, and an orthopedic group. The relations of orthopedic surgery to neurology are most important. That which should most concern us in the treatment of cripples is the diagnostic study. The first consideration should be a knowledge of the various conditions of the nervous muscular system, bones and joints responsible for such cases. While the greatest possible attention should be paid to the training of men for orthopedic work, their studies should be devoted to a very considerable degree to neural medicine. There are cases in this war which bring back the statements of Sir Benjamin Brodies and of Sir James Paget that functional hysteria was due not to organic injury of nerve, muscle, bone or tendon, but to certain special conditions of the nervous system. Every orthopedic base hospital or reconstruction hospital should have, and doubtless will have, a neurologic member on its staff. One of the great hospitals with which Dr. Davis is connected is the Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases. This combination of work was brought about by the great neurologist, S. Weir Mitchell, and Dr. Thomas G. Morton, surgeon, and the institution has obtained results that would have been impossible had there not been this coördination of neurology and surgery.

Major Silver, in closing, said that one distinction most important to make is that orthopedic and reconstruction are not synonymous terms. The point emphasized by Dr. Davis of the urgent need of carrying out orthopedic work in our general hospitals is one of the most important points in our industrial problems. Men discharged from the hospital failing to follow directions, or given no directions, acquire atrophy from disuse of an injured member. We must supply the missing link so that men are physically restored before they are allowed to leave the hospital. The question of the experts mentioned by Dr. Gill presents a difficult problem; yet, any one who has seen what is done by these men with amputated limbs will not ask for more finished experts than they are. One man with one arm amputated is a dentist. In reeducating these crippled soldiers, we shall be the ones who are reeducated.

NEWS OF THE CANTONMENTS

Twenty-Eighth Division, Camp Hancock, Augusta, Ga.

Dec. 9, 1917.

Friday, December 7, Major Stiles, the hookworm expert, of the United States Public Health Service, addressed the surgeons of the Twenty-Eighth Division on the subject of diseases of the southern negro, and care of troops in the South.

During the past week the Inspector-General of the Army has been making a close inspection of the division.

Thirty-First Division, Camp Wheeler, Macon, Ga.

Dec. 12, 1917.

The two epidemics of measles and pneumonia appear to have come to an end. While it was suspected that there was some connection between the two, it was not known that the connection was so intimate until the figures were tabulated. It was then seen that the curve for pneumonia rose following the rise for measles, reached an apex twelve days after the measles apex, and fell in the same manner. The collected figures showed that approximately 45 per cent. of the pneumonia followed measles. Of some 3,000 cases of measles approximately 7 per cent. were followed by pneumonia. Moreover the measles pneumonia was very much more fatal than the independent pneumonia. There is no longer any doubt in our minds that pneumonia is an infectious disease, or that preventive measures must be used very much as for meningitis. All factors which weaken men and lower the vitality are powerful predisposing causes. Of these measles is the chief; it prepares the bronchii for receiving the germs, spreads the pneumococcus through bronchial cough, and in some peculiar manner renders the patient especially susceptible. It may be said to produce a sort of anaphylaxis for pneumonia.

PERSONAL

Major Harrold of the One Hundred and Twenty-First Infantry is out of the hospital after a severe operation. He left Thursday for a short trip to Washington.

BASE HOSPITAL

Major Cole, chief of surgical service at the base hospital, is using the Carrel method of wound treatment, with good results. He finds the Dakin solution rather difficult to prepare and preserve. Freezing makes it worthless. The treatment was demonstrated to all medical officers on Thursday. Major Sailer, chief of medical service, addressed the medical officers on the old but ever new subject, pneumonia, on Friday.

Room for better handling of patients has been made by the transfer of 123 pneumonia convalescents to Fort McPherson.

Mumps are on the increase judging from the admissions during the week.

Major Hans Zinsser gave a most interesting and instructive lecture on the serum treatment and diagnosis of the various types of pneumonia on Monday night. He is now actively engaged in locating and isolating meningococcus carriers of whom a few have been found in the division.

ONE HUNDRED AND SIXTH SANITARY TRAIN

Major Lorin A. Greene, commanding Field Hospital No. 121, has returned from his leave of absence and has taken up his duties with renewed vigor.

Lieutenant Stearns of Ambulance Company No. 122 has been transferred to the base hospital at this station for permanent duty.

The many friends of Lieut. Peter S. Mallon are pleased to hear that he is recovering from his serious illness at the base hospital at Fort McPherson.

The "big house" started last week by Majors Keenan and Patterson has been completed and occupied. The train commander and the director of field hospitals certainly seem comfortable in their three-room bungalow.

Recruiting has been brisk the past week and the Field Hospital No. 124 has practically completed its quota through the activity of Captain Miles.

Lieutenant Meriwether of Field Hospital No. 122 is on a short leave of absence.

Thirty-Fourth Division, Camp Cody, Deming, N. M.

BASE HOSPITAL

Dec. 12, 1917.

Associated with each division in mobilization camps is a base hospital, which, while not a part of the division, necessarily works in the closest cooperation with it, both in the care of the sick and injured and in the training of the personnel of the medical department. These hospitals are large, for they serve a population as great as that in our smaller cities. At Camp Cody, the base hospital has already a considerable history. This camp is not entirely new, but is over a year old, having come into being at the time of the trouble with Mexico, which led to the establishment of military camps at this and other places along the border. Ground within the town of Deming adjacent to the site of the camp was acquired by the Deming chamber of commerce and leased to the government for ninety-nine years at a nominal rate. Sewerage and water connections were given by the town council, and seven wooden buildings were erected, one for administration and six for use as medical and surgical wards. These were completed about August 1, and used for the hospital purposes under the direction of Major Truby, M. C., U. S. Army, first commanding officer of the base hospital.

Medical officers assumed command of the base hospital as follows: August 1, 1916, Major Truby; shortly afterward, Major F. W. Weed; December 1, Major M. H. DeLaney; April 17, 1917, Major H. C. Pillsbury; April 25, Lieut. (now Capt.) R. B. McLaws, and, Sept. 1, Major A. O. Davis, who is still in command.

With the advent of the Thirty-Fourth Division, the accommodations at the old base hospital became utterly inadequate, and the preparation of the new hospital was made part of the construction program. The site is 4 miles away from the noise and dust of the town, located in the full desert and affording an uninterrupted view of the mountains, which surround the Deming plain on all sides. Work was so far completed that, Nov. 1, 1917, all except the surgical patients were moved to commodious buildings ready for them. There are forty-three of these, built on the cottage plan, spread over a large area, but connected with one another by wide covered ways. These, and the spacious verandas surrounding the cottages, provide abundant opportunity for moving the sick and convalescent outdoors into the sunshine.

Twenty-two wards are occupied as follows: 1, measles and its complications; 2, 3, 6, 7, 8, 9, 10, 11, 13, 14, 15 and 16, medical wards; 4 and 5, genito-urinary wards; 12, pneumonias; 17 and 18, nose and throat cases; 19 and 20, orthopedic cases, and 21 and 22 (isolated) contagious diseases. Each ward accommodates forty patients, and there are in the hospital (December 6) 1,284 patients in the new hospital and 190 in the old. These include cases as follows; measles, 45; German measles, 192; pneumonia, 27; diphtheria, 3; scarlet fever, 8; venereal diseases, 16; tonsillitis, two wards; gastro-intestinal, one ward; awaiting possible discharge on surgeon's certificate of disability, 250. Thirty-three medical officers are in attendance and 311 enlisted man, Medical Department, including forty-five temporarily detached from the sanitary train. Major A. O. Davis, commanding officer, comes from Brighton, Maine; Major John W. Sluss of Indianapolis is adjutant; Major William H. Thomas of Philadelphia is chief of the surgical service, and Major Edward B. Bigelow of Worcester, Mass., of the medical service.

NOTES

French and British officers attached to the division are giving to the medical officers several talks on conditions on the west front. They are instructive and valuable, and are greatly appreciated.

Two divisional reviews have been held recently. Favorable comment was made on the character and conduct of the sanitary train.

The Thirty-Fourth led all the divisions in subscriptions to the Liberty Loan, having subscribed for a larger total and per capita amount than any other.

Over $7,000,000 in war insurance has been subscribed within the division thus far.

Eighty-Fourth Division, Camp Zachary Taylor, Louisville, Ky.

Dec. 15, 1917.

Owing to the impassable roads following the deep snow, it was impossible for the garbage contractors to use their trucks for the collection of garbage, and it was found necessary by Dr. Luther R. Poust, sanitary officer, to operate the camp incinerator for garbage disposal. The various units were ordered to utilize their own wagons in hauling the garbage from their respective kitchens to the kitchens' garbage depot.

Freezing water pipes in bath houses have been one of the inconveniences suffered by the men at a few of the barracks. Active outdoor training has been retarded by the cold spell, and indoor lectures and classes have taken the place of drilling.

False reports of sufferings of soldiers at the cantonment and even stories of deaths from freezing have been circulated and branded as German propaganda. On the tenth instant, the second death from cerebrospinal meningitis occurred since the opening of the camp. Only a few days before he was taken sick, he took out a $10,000 War Risk Insurance Policy in favor of his mother. She will be the first beneficiary to receive payment on an insurance policy taken out at this post. There are twelve other meningitis patients at the camp, but all are expected to recover under the serum treatment. All company commanders have been authorized to waive Army regulations in cases of men honorably discharged from the service and without means to provide themselves with heavy outer clothing, letting them have overcoats to wear home. Overcoats issued are to be returned to the nearest Quartermaster's Depot within fifteen days after discharge.

The base hospital suffered considerable inconvenience by the freezing of water pipes leading to the operating room, putting out of commission all sterilizers. The commanding officers took personal charge of a group of men detailed to thaw out the pipes, and in a few hours the operating room was ready for an operation. Fortunately, during the period that it was out of commission not an emergency arose that required its use. Many oil stoves were requisitioned to heat wards after the steam was found inadequate.

BASE HOSPITAL

Special orders issued on the 13th, from Washington, D. C., direct Lieut.-Col. Will L. Pyle of the Medical Corps to report to the commanding general of the Eighty-Fourth Division, Camp Zachary Taylor, in person and assume charge of the base hospital. Colonel Pyle has been on duty at Fort Niagara, N. Y. He has not arrived as yet, and will relieve Major J. W. Worthington, who is the senior officer in charge of the base hospital, and who has been ordered elsewhere.

On the 13th, 906 cases were under treatment in base and regimental hospitals, against 967 earlier in the week. There are 23 cases of typhoid fever, 17 cases of pneumonia, 315 of measles, 7 of mumps, 5 meningitis carriers, 13 meningitis and 11 erysipelas. On the 14th, 63 patients were discharged.

Lieuts. S. H. Geist and Mayer are two of the busiest officers at the camp each morning up to 10 o'clock, as they are in the hospital receiving ward. An average of forty patients arrive at the hospital each morning, where they are examined and admission history taken before they are assigned to the wards.

"Walker," the ambulance dog, has been reported "absent without leave." The ambulance company has adopted another dog they named "Sergeant" so they may be able to throw food at him when displeased with the mess.

A company of the Three Hundred and Thirty-Fifth Infantry was due to be released from quarantine for meals when a private who had been exposed for seven weeks developed the disease, and all will have to remain in the confines of their area for fourteen days longer, thus destroying their chances for a furlough for Christmas. The patient is being accused of being the slowest mortal alive.

Eighty-Fifth Division, Camp Custer, Battle Creek, Mich.

DEC. 11, 1917.

Although winter weather has come down on us with its fury, the men seem to enjoy it. Training necessarily has been interfered with, yet hikes, drills and school work goes on much the same as if there were not 8 or 9 inches of snow on the ground.

Whether the cold weather will have any effect on the health of the camp remains to be seen; but reports given out by the division surgeon show the rate to be less than that of the general rate of the National Army, with only 14.79 per thousand. Thirty-two per thousand is the rate of the entire National Army.

The good work of the state health department, the city officials and the military police is without question responsible for the rather unusual percentage rate of venereal infections here. Camp Custer's record is only 1.75 per cent. As this includes all types, including those that were brought to camp with the draft increments, the showing is particularly gratifying to the division surgeon.

It has been shown that thirty-five female carriers of venereal infection were isolated and confined in hospitals at Ann Arbor. There has been no provision made for male carriers. It is expected that arrangements will be made by the state board of health for obtaining a building for segregation of civilian carriers.

The plan of instruction given the medical officers has been started again in paper work, gas defense work and map reading. The lyceum under the direction of Major Wood, commanding officer at the base hospital, has also begun, and much interest has been aroused by the interesting work planned by Major Wood. Every medical officer in camp is expected to attend these courses.

NOTES

Major George F. Suker, chief of the ophthalmic division of surgery of the head, addressed the Academy of Medicine at Kalamazoo, November 27, on "Injection of the Lateral Ventricles in the Treatment of Tabetic Optic Atrophy."

Major John Ridlon was again in camp, giving a course of instruction to the line officers on the care of the feet.

Eighty-Seventh Division, Camp Pike, Little Rock, Ark.

DEC. 9, 1917.

Camp Pike, in general with all southern cantonments, has just received a dose of the "Sunny South" that was entirely unexpected and unappreciated. The thermometer dropped to 2 degrees below zero, and there was a 6 inch fall of snow. The general style of architecture in the cantonment buildings is the same here as elsewhere, except that measures have been taken in northern camps to prepare for cold weather that have not been taken at Camp Pike. In the camps further north, the barracks have been lined with "compo" board, the foundations banked up and ventilators adjusted. At Camp Pike buildings are up on stilts, walls unlined on the inside, and ventilators open. It is a very difficult matter to make buildings of this type comfortable in zero weather, especially if there is a wind of considerable velocity blowing. These conditions are probably healthful and of no importance to robust individuals, but it is a matter for consideration as to the possible effect of such surroundings on persons either going through the period of incubation or recovering from certain contagious diseases. The conditions are ideal for the fresh air and cold air enthusiasts in the treatment of disease.

The state of health of the men in the division may be said to be very good. The base hospital at present is full, more than half of the patients having measles. There have also been scarlet fever and meningitis among some of the more recent arrivals from the North. Soldiers furnish about the same percentage of surgery as do individuals in civil life, so that this department is always reasonably busy.

The heating plant at the hospital has been completed, and the buildings are very warm and comfortable at present.

Major-General Gorgas visited the camp about December 1.

Colonel Chamberlin of the Surgeon-General's Office was also a recent visitor.

One of the problems confronting Camp Pike at the time of its construction was the matter of suitable sewage disposal. It was necessary to discharge the sewage into Five Mile Creek, a small stream in this vicinity. This formed a bubbling, fetid and offensive stream which flooded Bayou Meto and Trammel Lake and other swampy areas in this region. A sprinkling filter basin for all sewage has been constructed which renders the sewage inoffensive as far as odor is concerned.

The tuberculosis examination board, under the direction of Major Gath of Cincinnati, although it has been here several weeks, is still very busy. Lieutenant De Witt of this board, formerly a member of the medical officers' training camp at Fort Benjamin Harrison, has been promoted to a captaincy, as have also Lieut. Charles Lerrigo of Topeka in command of Ambulance Company No. 347, Three Hundred and Twelfth Sanitary Train, and Lieut. T. R. Ayres of St. Louis, at present with the regimental infirmary of the Three Hundred and Thirty-Fourth Field Artillery.

Some of the medical officers in this division who have recently taken advantage of a ten day leave of absence in order to visit their homes are: Major J. W. Thornton of Iowa, Capt. J. B. Steele of Tennessee, Capt. Paul R. Howard of Nebraska and Lieut. N. R. Palmer of Missouri.

Eighty-Ninth Division, Camp Funston, Fort Riley, Kan.

DEC. 12, 1917.

During the week just passed, the Eighty-Ninth Division was honored by a visit from Surgeon-General Gorgas and his party, which included Colonel Howard, M. C., Major Vaughan, M. R. C., of the University of Michigan Medical

School, and Dr. Welch of Johns Hopkins. They inspected the base hospital, the camp and its infirmaries, and all expressed themselves as highly pleased with the organization and work of the medical department in this division.

On the first evening of their stay, the Surgeon-General, Dr. Welch and Major Vaughan delivered a short address to all the medical officers of the camp. After extending remarks of greeting to all, the Surgeon-General directed his remarks particularly to the colored medical officers of the Ninety-Second Division. He stated that, as one born and raised in the South, who had watched with interest and appreciation the struggles of a newly freed race toward better things, he thought it particularly commendable that the colored physicians should have taken it on themselves and succeeded in volunteering their services in the Medical Department, in this greatest of all wars for democracy. He stated that he was sure they would give a good account of themselves, both as officers and as physicians.

Dr. Welch, who accompanied the party as epidemiologist, showed the typical modesty of a great man, when he told us that there was more for him to learn from the way the medical department of this camp was conducted than there was for him to teach us.

Major Vaughan stated that, while the division sanitary inspector and the division surgeon had been justly complimented by the two previous speakers, he wished, in addition, to extend his congratulations to the regimental surgeons and other medical officers of the camp who had made the work run smoothly. He said he was sure that all the sacrifices represented by the presence of the officers in the audience before him would be amply repaid in the years to come by the feeling that when their country needed them, they had responded to the call.

ORDERS TO OFFICERS OF THE MEDICAL CORPS

Major JUNIUS F. LYNCH, relieved at Camp McClellan, and *to Camp Stuart,* Newport News, Va., for duty.

Lieut. ROSSNER E. GRAHAM, relieved at Allentown, Pa. and *to Camp Lee,* Petersburg, Va., for duty.

Major ADDISON D. DAVIS, relieved at Camp Kearny, and *to Camp Joseph E. Johnston,* for duty as commanding officer of the base hospital.

Major HENRY J. NICHOLS, relieved from U. S. Army General Hospital No. 1, and *to Walter Reed General Hospital,* Takoma Park, D. C., for treatment.

Lieut.-Colonel WILLIAM E. VOSE, relieved from station at Fort Williams, Me., *to Fort McPherson, Ga.*

Colonel LEIGH A. FULLER, relieved at Fort D. A. Russell, and *to Charleston, S. C.,* to report in person to the commanding general, Southeastern Department, for duty as department surgeon.

Lieut.-Colonel WILLIAM L. LITTLE, relieved at Newport News, Va., and *to Fort Bliss, Texas,* for duty as division surgeon.

Major JESSE R. HARRIS, relieved at Fort Niagara, and *to Ithaca, New York,* Military School of Aeronautics, Cornell University, for duty.

Lieut. HENRY TIMROD SCHIFFLEY, relieved at Camp Sevier, and to report in person to the commanding general, 30th division, for duty in the base hospital.

Lieut.-Colonel JOHN W. HANNER, *to New York City* to command and mobilize Base Hospital No. 116, at the 71st Regiment Armory.

Capt. HERBERT R. DREARY, relieved at Camp McClellan, and *to his home* and honorably discharged from the Medical Corps of the National Guard.

ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

Alabama

To Camp Bowie, Fort Worth, Texas, base hospital, from Camp Meade, Lieut. GEORGE W. KIEHNHOFF, Daphne.

To Camp Funston, Fort Riley, Kan., as member of board for examination of command for tuberculosis, from Fort Worth, Lieut. SAMUEL E. JOHNSON, Clanton.

To Camp Travis, Fort Sam Houston, Texas, to examine the command for mental and nervous diseases, from Baltimore, Lieut. ROBERT H. HOWARD, Tuskegee.

To Fort Oglethorpe, for instruction, Capt. WALTER WILLIS ROSSER, Stevenson; Lieuts. WALTON L. BEAN, Andalusia; LEO C. WOODS, Birmingham; BURTON F. AUSTIN, Chancellor; Hospital Train No. 28 from Fort Oglethorpe, Lieut. ROBERT S. DODSON, Grand Bay.

To New York City, Base Hospital No. 116, for duty from Boston, Capt. PAUL L. COCKE, Birmingham; for instruction in orthopedic surgery, from Fort Ethan Allen, Lieut. DAVID RAMSEY, Pine Apple.

Arizona

To Army Medical School, Washington. D. C., for instruction in orthopedic surgery, from Fort Oglethorpe, Capt. RODERICK D. KENNEDY, Globe.

To New York City, Orthopedic Hospital for instruction in orthopedic surgery, from New York City, Capt. CHARLES T. STURGEON, Globe.

Arkansas

To Camp Beauregard, Alexandria, La., for duty, from Fort Smith, Lieut. WALTER G. EBERLE, Fort Smith.

To Camp Pike, Little Rock, Ark., for duty, from Camp Lee, Lieut. GUY A. McCORMACK, Little Rock.

To Fort Oglethorpe, Ga., for instruction, Lieut. ARTHUR F. HOGE, Fort Smith.

To Little Rock, Ark., to enlist the enlisted personnel of Hospital Unit "T," Capt. ALVIN L. JOBS, Little Rock.

To Walter Reed General Hospital, Washington, R. C., for observation and treatment, Lieut. TRUE S. BURGESS, Russellville.

California

To Camp Fremont, Palo Alto, Calif., base hospital, from Fort Mason, Capt. LOUIS P. HOWE, San Francisco.

To Camp Kearny, Linda Vista, Calif., for duty, Capt. CHARLES L. GARVIN, Los Angeles; Lieut. EDGAR O. CAMPBELL, Santa Barbara; base hospital, Lieut. HOWARD B. DIXON, Daly City; Lieut. CHARLES E. SCHWARTZ, San Francisco.

To Camp Lewis, American Lake, Wash., for temporary duty to examine the command in his specialty, Capt. WILFRED F. BEERMAN, San Francisco.

To Camp Taylor, Louisville, Ky., base hospital, from Fort Oglethorpe, Lieut. ELMER W. SMITH, San Francisco.

To Fort Mason, Calif., Base Hospital No. 30, Capts. HOWARD E. RUGGLES, San Francisco; CHARLES N. RICHARDS, San Jose; Lieuts. CLARK R. GILES, WILLIAM W. WASHBURN, JOHN H. WOOLSEY, San Francisco; from Camp Kearny, Capt. HERBERT S. THOMSON, Berkeley; Lieuts. ERNEST H. FALCONER; HAROLD W. WRIGHT, San Francisco; from Camp Lewis, Lieut. HUDSON SMYTHE, Stockton; from Camp Travis, Lieut. ARTHUR C. GIBSON, San Francisco; from San Francisco, Lieut. ELDRIDGE J. BEST, CHARLES L. TRANTER, San Francisco.

To Fort Riley, for instruction Capts. ROBERT M. JONES, Jr., Fresno; GORDON B. HAMILTON, Oakland; Lieuts. BERNARD SHELTON, Long Beach; ERNEST E. WILSON, Walnut Grove; with Evacuation Hospital No. 7, from Camp Cody, Lieut. LIVA C. McLAIN, Bakersfield.

To New York City Orthopedic Hospital, for instruction in orthopedic surgery, from New York City, Lieut. JOSEPH R. JONES, Yreka.

To his home and honorably discharged on account of being physically disqualified for active service, from San Diego, Capt. ALEXANDER PATTERSON, San Francisco.

Honorably discharged, Lieut. SOLOMON C. MISH, San Francisco.

Canal Zone

To Washington, D. C., for duty in Aviation Section, Signal Corps, from Mineola, Capt. EDWARD P. BEVERLY, Balboa.

Colorado

To Camp Custer, Battle Creek, Mich., as president of board for examination of command for tuberculosis, from Camp Bowie, Major GERALD B. WEBB, Colorado Springs; base hospital, from St. Louis, Lieut. FRED H. CARPENTER, Denver.

To Camp Doniphan, Fort Sill, Okla., base hospital, Lieut. RANULPH HUDSTON, Denver.

To Camp Joseph E. Johnston, Jacksonville, Fla., as a member of the board for examination of command for tuberculosis, from Camp Bowie, Lieut. PHILIP A. LOOMIS, Colorado Springs.

To Camp Mills, base hospital, from Camp Mills, Lieut. PHILLIPS M. CHASE, Denver.

To Fort Riley, for instruction, Lieuts. JOSEPH B. SALBERG, Boulder; CARLETON O. BOOTH, Denver; JOSEPH A. KELLY, Oak Creek.

Connecticut

To Fort Oglethorpe, for instruction, Capt. JOHN B. GRIGGS, Hartford; Lieut. EDWARD A. WILLIAMSON, Stamford.

To Fort Slocum, N. Y., for duty, from Fort Ethan Allen, Lieut. M. H. GRISWOLD, Kensington.

To Hoboken, N. J., for duty, from Washington, D. C., Capt. ARTHUR B. COLEBURN, Middletown.

To New York City, for instruction in orthopedic surgery, from Hartford, Lieut. HERMAN M. HURWITZ, Hartford.

To Philadelphia, Pa., for instruction in orthopedic surgery, Capt. ROBERT H. YERGASON, Hartford.

District of Columbia

To Fort Keogh, Montana, for duty, from Fort Snelling, Capt. HARRY L. SCHURMEIER, Washington.

To Fort Oglethorpe, for instruction, Lieuts. CHARLES F. BOVE, GEORGE W. MANNING, Washington.

To Hazelhurst Field, Mineola, L. I., N. Y., for duty, from office of the Chief Surgeon, Major EDWARD G. SEIBERT, Washington.

Honorably discharged, Lieut. TRUE S. BURGESS, Takoma Park.

Florida

To Fort Oglethorpe, for instruction, Capt. MURDOCH L. CRUM, Bowling Green; Lieuts. ROBERT D. MAY, HOWARD C. VON DAHM, Jacksonville; JOHN L. ADAMS, Milligan; GEORGE H. GWYNN, HUMPHREY W. GWYNN, Tallahassee; EUGENE S. GILMER, Tampa; HERBERT A. McCLURE, Walnut Hill.

To New York City, Post-Graduate Medical School for instruction, from Camp Greene, Capt. HARRY A. PEYTON, Jacksonville.

To his home and honorably discharged on account of being physically disqualified for active service, from Camp Meade, Lieut. HARRY C. GALEY, Key West.

Georgia

To Atlanta, Ga., to enlist the enlisted personnel of Base Hospital No. 43, Lieut. EDGAR H. GREENE, Atlanta.

To Camp Beauregard, Alexandria, La., base hospital, from Fort Oglethorpe, Lieut. EARL T. NEWSOM, Camilla.

To Camp Cody, Deming, N. M., base hospital, from Fort Oglethorpe, Capt. WILLIAM B. OREAR, Savannah.

To Camp Gordon, Atlanta, Ga., base hospital, Lieut. JOSEPH A. McGARITY, Draketown.

To Camp Logan, Houston, Tex., base hospital, Major THEODORE R. CERTEL, Augusta.

To Fort Bliss, Texas, with Headqurters Military Police, from Camp Greenleaf, Lieut. JESSE H. HENDRY, Shellman.

To Fort Oglethorpe, for instruction, Lieuts. LUTHER E. KELLEY, Atlanta; JESSE J. EVERETT, Campton; DENNIS F. WELDON, Danelsville; OSCAR S. SPIVEY, Eatonton; CLAUDE B. BROOKINS, Gordon; EUGENE F. THOMASON, Lumber City; WILLIAM T. RANDOLPH, Monroe; CHARLES B. UPSHAW, Rydal; WILLIAM M. WHITE, Watkinsville.

To Newport News, Va., for duty, from Fort Oglethorpe, Lieut. WALTER E. MOBLEY, Social Circle.

To New York City, Base Hospital No. 116, from Fort Riley, Capt. WILLIAM G. LEE, Macon.

To Philadelphia, Pa., for instruction in orthopedic surgery, Lieut. KENNETH S. HUNT, Milner.

To his home and honorably discharged from Fort Oglethorpe, Lieut. JOSEPH D. LYLE, Savannah.

Hawaii

To his home and honorably discharged from San Diego, Lieut. SAMUEL R. BARNES, Honolulu.

Idaho

To Fort Riley, for instruction, Lieuts. GEORGE B. RANDALL, Buhl; CLAUDE W. WILLIAMS, Laclede; JOHN C. WIIK, Moscow.

To Vancouver Barracks, Wash., for duty, from Camp Lewis, Lieut. FREDERICK W. DIDIER, Harrison.

Illinois

To Boston, Mass., Harvard Medical School, for instruction in orthopedic surgery, Lieuts. ROBERT W. KISPERT, Chicago; BENJAMIN J. SCHWARTZ, Waukegan.

To Camp American University, Washington, D. C., for duty, from Fort Sheridan, Lieut. KARL J. HENRICHSEN, Chicago.

To Camp Beauregard, Alexandria, La., base hospital, from Fort Oglethorpe, Lieut. IRA E. NEER, Springfield.

To Camp Gordon, Atlanta, Ga., base hospital, from St. Louis, Lieut. HUDSON McB. GILLIS, Woodriver.

To Camp Mills, Garden City, L. I., for examining the command in his specialty, Lieut. JOHN T. MacCURDY, Pembroke Lodge.

To Camp Wadsworth, Spartanburg, S. C., base hospital, from Fort Oglethorpe, Lieut. ABEL P. M. SANDALH, Chicago.

To Fort Bliss, Texas, with Headquarters Military Police, from Camp Greenleaf, Lieut. JAMES K. JOHNSON, Ellsworth.

To Fort Oglethorpe, for instruction, Lieut. FREDERICK H. MAURER, Peoria.

To Fort Riley, for instruction, Capts. WILLIAM S. BROWN, Cairo; FREDERICK A. FISHER, THOMAS J. O'MALLEY, Chicago; JOHN A. BORTZ, Nauvoo; WALTER L. HOUGHLAND, Peoria; Lieuts. ALEXANDER P. ROBERTSON, Alton; HALLEY A. SMITH, Antioch; ELVEN J. BERKHEISER, Aurora; FRANK J KOTALIK, Berwyn; FRANK A. ANDERSON, SAMUEL AXELRAD, EDWIN J. BARNETT, STEPHEN BIEZIS, BERNARD J. BOLKA, SYLVESTER A. BRENZA, CHARLES B. BROMBERG, HENRY CHRISTIANSEN, ROY E. CHRISTIE, FLOYD M. CLARK, HERMAN C. CLAYTON, LAZARUS COHLER, JOHN E. DAMRON, ABRAHAM L. DESSER, HARRY J. DWYER, VICTOR FINSAND, ULYSSES S. GEIGER, EARL W. GILROY, ELMER A. GUNDERSON, RUSSELL A. HENNESSEY, CARL B. HERRMANN, WILLIAM ISRAELSON, EDWARD J. JENKINSON, CARL J. JOHANNESSON, HENRY C. JOHNSON, ROBERT F. KNOLL, MIECISLAUS J. KOSTRZENSKI, THOMAS LAHNERS, EDWARD J. MacDONALD, FRANK MADLEC, JOHN E. McGUIGGAN, FRED McK. MILLER, MAYER A. NEWHAUSER, HARRY S. NORTON, JOHN F. OATES, HOWARD S. PERRY, WILLIAM J. PICKETT, CHARLES E. PITTE, HAROLD A. RAMZER, ABRAHAM R. RIMMERMAN, FRANK J. SCHICK, FRED F. SCHWARTZ, WILLIS I. SILVERSTEIN, HARRY S. SOLOMON, HENRY A. STAIB, Chicago; CHARLES L. KERRICK, Chrisman; WARREN C. BLIM, Crete; GEORGE O. DE MOSS, Cropsey; THOMAS C. McCLURE, Dahlgren; MELVIN L. HOLE, Danville; GILBERT F. HARRIS, Easton; LAWRENCE J. BERNARD, East St. Louis; CLYDE J. CHAMNESS, Elkville; ALEXANDER W. FORDYCE, Gilman; HARRY P. REUSS, Granite City; HERMAN C. KOCH, Harvard; HARRY A. MYERS, Joliet; GEORGE J. BRAND, Lafayette; EDGAR C. COOK, Mendota; WILLIAM H. EVANS, Murphysboro; KEITH T. MEYER, Oak Park; HUGH E. COOPER, Peoria; HARRY H. HANLY, Peoria; GEORGE W. KIMBALL, Stewart; HORACE M. FRANCIS, Woodstock; LEO V. GATES, Zeigler.

To Fort Robinson, Neb., for duty, Lieut. ALBERT N. MACKEY, Aledo.

To Fort Slocum, N. Y., for duty, from Fort Ethan Allen, Lieut. MAURICE L. PUFFER, Downers Grove.

To Milwaukee, Wis., for duty in the office of the attending surgeon, from Chicago, Lieut. CLAUDE H. OGDEN, Chicago.

To New York City, for instruction in orthopedic surgery, Lieut. IRWIN H. CUTLER, Chicago; from Chicago, Lieut. VINCENT W. KOCH, Chicago.

To Philadelphia, Pa., for instruction in orthopedic surgery, Capt. EDSON B. FOWLER, Evanston.

To St. Louis, Mo., Washington University, *for instruction* in Urology and Dermatology, from Fort Oglethorpe, Lieut. GEORGE W. BOWMAN, Ashley.

Honorably discharged, Capt. WALTER P. McGIBBON, Chicago.

To the inactive list, from Fort Benjamin Harrison, Lieut. IRVING A. PORGES, Chicago.

Indiana

To Camp American University, Washington, D. C., for duty, from Fort Benjamin Harrison, Lieuts. CLARENCE K. JONES, Indianapolis; GEORGE T. JOHNSON, Terre Haute.

To Camp Green, Charlotte, N. C., base hospital, from Roosevelt Hospital, New York City, Lieut. BROWN S. McCLINTIC, Peru.

To Camp Pike, Little Rock, Ark., base hospital, from Fort Oglethorpe, Lieut. MELCHERD H. KUTCH, Terre Haute.

To Camp Sevier, Greenville, S. C., base hospital, from Fort Oglethorpe, Lieut. SEWELL B. COULSON, Indianapolis.

To Camp Taylor, Louisville, Ky., as medical member of examining board and recruiting officer, from Fort Benjamin Harrison, Lieut. PAUL B. COBLE, Indianapolis; for duty, from Camp Custer, Lieut. PERRY C. TRAVER, South Bend.

To Chickamauga Park, Ga., for duty from Fort Benjamin Harrison, Lieut. CLAUDE D. HOLMES, Indianapolis.

To Fort Oglethorpe, for instruction, Capt. GEORGE T. WILLIAMS, Crawfordsville; Lieut. ANDREW F. GUGSELL, Ferdinand; from Houston, Texas, Lieut. MERTON A. FARLOW, Milroy; with Ambulance Co. No. 42, from Camp Custer, Lieut. ELTON L. TITUS, Indianapolis.

To St. Louis, Washington University, for instruction in urology and dermatology, *from Camp Grant*, Lieut. WARREN W. HEWINS, Evansville.

Iowa

To Fort Riley, for instruction, from Camp Dodge, Major CHARLES E. RUTH, Des Moines; Capt. BENJAMIN C. DYER, Ames; for instruction, Capts. MARK C. JONES, Boone; ALANSON M. POND, Dubuque; FRANK G. RHODES, Sioux City; Lieut. LOUIS B. AMICK, Millersburg.

Kansas

To Army Medical School, Washington, D. C., for duty, Lieut. GEORGE M. GRAY, Kansas City.

To Fort Riley, for instruction, Lieuts. SAMUEL N. MALLISON, Canton; CHARLES A. THOMAS, Edna; CHARLES S. FRY, St. George; ALBERT M. BROWN, Wichita.

To St. Louis, Washington University, for instruction in urology and dermatology, from Camp Taylor, Lieut. CLYDE M. ZINK, Wellington.

Kentucky

To Boston, Harvard Medical School, for instruction in orthopedic surgery, from Fort Oglethorpe, Lieut. JOHN W. STEPHENSON, Ashland.

To Fort Oglethorpe, for instruction, Major JULIAN P. McCLYMONDS, Lexington; Lieuts. EUGENE C. HARTMAN, Brandenburg; EARL M. CUTLER, SELMAR F. HAUSER, CLIFFORD N. HEISEL, THOMAS H. KELLY, Covington; HAVILAND CARR, Cynthiana; HARRY F. MANN, Demonsville; RICHARD R. SNOWDEN, Irvine; HYLAN H. WOODSON, Kirkmansville; HUNTER W. GINGLES, Kirksey; JOSEPH R. ALLEN, Langley; LYTLE ATHERTON, Livermore; EDWARD L. IRVIN, MARION E. PIRKEY, ISAAC L. WYATT, Louisville; JOHN R. PRYOR, Mayfield; GIDEON W. STONE, Middlesboro; FREDERICK K. BLAIR, Morehead; HARLAN G. CLAYPOOLE, Mt. Olivet; HOMER A. SUTTER, Newport; MILTON J. STERN, Paris; RAYMOND M. EVANS, Tompkinsville; NATHAN FELD, Winchester.

To Fort Thomas, Ky., for duty, *from Camp Dix*, Capt. JOHN L. PHYTHIAN, Newport.

To Lexington, Ky., to enlist the enlisted personnel of Base Hospital No. 40, Lieut. GEORGE H. WILSON, Lexington.

To his home and honorably discharged from Fort Oglethorpe, Capt. EDWARD W. FORD, Hartford.

Louisiana

To Camp Joseph E. Johnston, Jacksonville, Fla., base hospital, from Fort Oglethorpe, Lieut. ERNASTUS L. MILLER, Longville.

To Camp Pike, Little Rock, Ark., for duty, from Camp Pike, Lieut. HOWARD P. DOLES, Blanchard.

To Fort Oglethorpe, for *instruction*, Lieuts. HAROLD G. F. EDWARDS, Abeville; EDWARD E. ARCHIBALD, Alberta; RALPH P. EVANS, Alexandria; WALTER P. LAMBETH, Allendale; HOWARD P. DOLES, Blanchard; ALARIC C. WHITTINGTON, JOSEPH L. EWING, Dodson; EDWIN M. LEVY, Jackson; BROOKS C. GARRETT, Shreveport; PATRICK H. FLEMING, St. Martinville; JOSEPH M. GORTON, Waterproof.

To his home and honorably discharged, from Fort Oglethorpe, Lieut. OLIVER W. ALFORD, Bovalusa.

Maine

To Camp Wheeler, Macon, Ga., base hospital, from Harvard Medical School, Capt. WILLIAM C. WHITMORE, *Portland*.

To Fort Oglethorpe, for instruction, Lieuts. FREEMEN P. GLASON, GARDINER; ISAAC L. GORDON, Lincoln; WYVERN A. COOMBS, Westbrook; FRED E. WHEELER, West Paris.

To Fort Slocum, N. Y., for duty, from Fort Ethan Allen, Lieut CHARLES E. COOK, Jr., South Berwick.

Maryland

To Baltimore, Md., Johns Hopkins Medical School, from duty as contract surgeon, Lieut. LEWIS H. WEED, Baltimore.

To Camp Beauregard, Alexandria, La., base hospital, from Fort Oglethorpe, Lieut. JULIE R. ROLENSON, Baltimore.

To Camp Dodge, Des Moines, for duty, from Fort Des Moines, Major FRANK MARTIN, Baltimore.

To Camp Joseph E. Johnston, Jacksonville, Fla., as adjutant of the base hospital, from Camp Hancock, Lieut. IRVING K. LOVETT, Baltimore.

To Fort Oglethorpe, for instruction, Lieuts. CLAUDE C. KELLY, THEODORE S. MOISE, JOHN C. NORTON, CLARENCE M. REDDIG, HARRY E. WILSON, Baltimore; WILMER M. PRIEST, North East; HUGH R. SPENCER, Parkton; MILFERT W. MYERS, Taneytown.

To Fort Slocum, N. Y., for duty, from Fort Ethan Allen, Lieut. ANTONE C. SORENSEN, Baltimore.

To New York City, to inspect the Neurological School, then to Montreal, Quebec, Toronto, Ontario and Winnipeg, Manitoba, Canada, for duty and on completion to his proper station, Capt. CHARLES BAGLEY, Jr., Baltimore; for intensive training in his specialty, from Baltimore, Lieut. HENRY E. AUSTIN, Baltimore.

To Washington, D. C., for duty in Aviation Section, Signal Corps, from Millington, Capt. COMPTON WILSON, Friendship.

To his home and honorably discharged, Major A. COTTON, Baltimore.

Massachusetts

To Army Medical School, Washington, D. C., as professor of orthopedic surgery, Major ELLIOT G. BRACKETT, Boston.

To Boston, Mass., Harvard Medical School, for instruction in orthopedic surgery, Lieuts. EARLE M. HUSSEY, Fall River; GEORGE MOSSMAN, Westminster.

To Camp Beauregard, Alexandria, La., base hospital, from St. Louis, Lieut. CHARLES F. CANEDY, Greenfield.

To Camp Grant, Rockford, Ill., base hospital, Capt. JOHN BRYANT, Brooklyn.

To Fort Oglethorpe for instruction, Capt. NOEL E. GUILLET, Brookline; Lieuts. WILLIAM E. BROWNE, JAMES C. LEAVITT, Boston; CHARLES H. MERRILL, Lynn; EMIL U. DILLENBACK, Springfield.

To Hoboken, N. J., for duty, from Fort Myer, Lieut. EDWARD H. FRENCH, Boston.

To Morrison, Va., for duty, from Langley Field, Lieut. WILLIAM L. CONNERY, Springfield.

To New York City, Base Hospital No. 116, from Boston, Capt. SAMUEL W. ELLSWORTH, Boston.

To St. Louis, Mo., for instruction in urology and dermatology, Lieuts. ROBERT J. EVANS, Jr., JOHNSTON L. CHERESKIN, Springfield.

To his home and the inactive list on account of being physically disqualified for active service, Lieut. HILMAR O. KOEFOD, Boston.

Michigan

To Camp MacArthur, Waco, Tex., base hospital, from Harvard Medical School, Capt. CURTIS D. PILLSBURY, Ann Arbor.

To Camp Mills, Garden City, L. I., to examine the command in his specialty, Lieut. NICHOLSON W. PINTO, Kalamazoo.

To Camp Sheridan, Montgomery, Ala., base hospital, from Fort Oglethorpe, Capt. FRANK C. KINSEY, Grand Rapids.

To Fort Riley, for instruction, Capt. LOUIS N. YORKES, Elk Rapids; Lieuts. HAROLD B. MARKHAM, Marquette; WILLIAM E. ALLEGER, Pittsford; LEON W. MARTIN, Plainwell; from Ann Arbor, Lieut. GORDON H. BAHLMAN, Flint; from Camp Custer, Lieuts. SPENCER VAN BARNUM, Coloma; WESLEY A. GIFFIN, Deckerville; FRANK W. GOWDY, St. Joseph.

To Hoboken, N. J., for duty, from Camp Sherman, Capt. GRIFFITH A. THOMAS, Detroit.

To Jeffersonville, Ind., Depot Quartermaster, for duty, from Fort Oglethorpe, Lieut. CYRUS B. GARDNER, Alma.

To New York City, for instruction in orthopedic surgery, from Ironwood, Capt. EUGENE B. STEBBINS, Ironwood.

To St. Louis, Mo., Washington University, for instruction in urology and dermatology, Lieut. LELAND H. TOWER, Battle Creek.

Minnesota

To Camp Beauregard, Alexandria, La., base hospital, from St. Louis, Lieut. FLOYD W. BURNS, St. Paul.

To Camp Dodge, Des Moines, Ia., base hospital, from Minneapolis, Lieut. CHARLES E. CONNOR, Minneapolis.

To Camp Greene, Charlotte, N. C., for duty, from Fort Snelling, Lieut. ELMER H. LUTZ, St. Paul.

To Camp Lewis, American Lake, Wash., base hospital, Lieut. HARVEY M. SLATER, Minneapolis.

To Camp Upton, N. Y., to examine the command for mental and nervous diseases, from Ann Arbor, Lieut. FREDERICK P. MOERSCH, Minneapolis.

To Fort Riley, for instruction, Lieuts. FRANK J. ELIAS, Duluth; VERNE S. COBOT, JAMES N. DUNN, Minneapolis; CLARENCE A. RATHBUN, Rice; STEWART H. ANDERSON, Wells.

To Hoboken, N. J., for duty, from Fort Snelling, Capt. MARTIN LARSON, St. Paul.

To Minneapolis, Minn., to enlist the enlisted personnel of Base Hospital No. 26, Lieut. GORDON M. CLARK, Minneapolis.

To Philadelphia, Pa., for instruction in orthopedic surgery, Lieut. IVER F. SELLESETH, Glenwood.

To his home and honorably discharged from the Medical Reserve Corps on account of being physically disqualified for active service, from Camp Custer, Capt. FRANKLIN R. WRIGHT, Minneapolis.

Mississippi

To Army Medical School, Washington, D. C., for duty, Lieut. WALTER B. DODSON, Jackson.

To Camp Sherman, Chillicothe, Ohio, base hospital, Lieut. AUGUST J. PEDEST, Natchez.

To Fort Oglethorpe, for instruction, Capt. ZACHARIAN J. SCOTT, Winona; Lieuts. ABNER J. BARNETT, Carthage; ARTHUR A. SPARKMAN, Cleveland; DUDLEY R. MOORE, Cockrum; LEON C. ELLIS, Columbus; JOHN D. SIMMONS, Gunnison; WILLIAM J. AYCOCK, Hohenlinden; WIRT A. RODGERS, Jackson; ROBERT B. HARPER, McBride; GEORGE R. STORM, Phillip; BURRIE E. BURCHFIELD, Ruleville.

Missouri

To Boston, Mass., Harvard Medical School, for instruction in orthopedic surgery, Lieuts. CHARLES W. BRESSLER, Grant City; FRED C. CALLAWAY, Ravanna.

To Camp Funston, Fort Riley, as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Worth, Lieut. ALLEN G. WAINWRIGHT, St. Louis.

To Camp Hancock, Augusta, Ga., base hospital, from Fort Oglethorpe, Lieut. MOSES H. TOPPING, Flat River.

To Camp Lewis, American Lake, Wash., base hospital, Capt. JOHN BUTLER, Hawk Point.

To Camp Pike, Little Rock, Ark., base hospital, from St. Louis, Lieut. JAMES R. ELLIOTT, Kansas City.

To Camp Shelby, Hattiesburg, Miss., base hospital, Capt. EDWARD L. COOLEY, St. Louis.

To Camp Travis, Fort Sam Houston, Texas, base hospital, Capt. MINFORD A. HANNA, Kansas City; *to examine the command for mental and nervous diseases, from Baltimore,* Lieut. WILLIAM G. PATTEN, Farmington.

To Fort Riley, for instruction, Lieuts. WILLIAM O. FINNEY, Chaffee; HERMAN A. LAFORCE, Jasper; FRED E. DARGATZ, Kearny; THOMAS F. EDWARDS, Keota; VIRGIL S. DANGERFIELD, Luray; CLAUDE J. ALLEN, Rich Hill; CLAUDE D. HALLEY, CARL J. MULLER, St. Louis.

To Newport News, Va., for duty, from Fort Oglethorpe, Lieut. JAMES B. WOOD, St. Louis.

To Philadelphia, Pa., for instruction in orthopedic surgery, Lieut. HENRY L. HESS, Kansas City.

To Roosevelt Institute, for instruction in laboratory work, Lieut. BERNARD J. McMAHAN, St. Louis.

To his home and honorably discharged, from Camp Meade, Lieut. BENJAMIN F. JOHNSON, Buffalo; from Fort Riley, Lieut. ARTHUR O. TUCKER, Maysville.

Honorably discharged, Lieut. WILL L. FREEMAN, St. Charles.

Montana

To Camp Doniphan, Fort Sill, Okla., base hospital, from Fort Oglethorpe, Lieut. JOHN J. TOBINSKI, Missoula.

To Camp Shelby, Hattiesburg, Miss., base hospital, from St. Louis, Lieut. ROBERT L. OWENS, Hamilton.

To Camp Sherman, Montgomery, Ala., base hospital, from St. Louis, Lieut. KARL A. SNYDER, Great Falls.

To Fort Riley, for instruction, Lieuts. JOHN H. BRIDENBAUGH, Billings; WILLIAM D. MADDEN, Great Falls; from Fort Riley, Lieut. EDWARD O'NEILL, Kalispell.

Nebraska

To Army Medical School, Washington, D. C., for duty, Lieut. AUGUST F. JONES, Omaha.

To Camp Beauregard, Alexandria, La., base hospital, from Fort Oglethorpe, Lieut. DEXTER D. KING, York.

To Camp Cody, Deming, N. M., for duty, from Fort Riley, Lieut. HARRY J. JENKINS, Omaha.

To Camp Greene, Charlotte, N. C., base hospital, from Fort Oglethorpe, Capt. JUDD A. STRONG, Kearny.

To Camp Joseph E. Johnston, Jacksonville, Fla., as member of board for examination of command for tuberculosis, from Camp Bowie, Lieut. JOHN F. ALLEN, Omaha.

To Fort D. A. Russell, Wyoming, for temporary duty, from Fort Riley, Capt. CHARLES H. CAMPBELL, Columbus.

To Fort Riley, for instruction, Lieuts. RALPH P. HIGGINS, CHARLES L. HOUSEL, Ansley; GEORGE F. HAWES, Arlington; CHARLES E. PALMER, David City; LEONARD O. RIGGERT, Norfolk; CHARLES W. W. HARMS, JOHN HOLST, Jr., JOHN R. KLEYLA, Omaha; LESTER K. STRATE, Sutton; from Fort Riley, Lieut. CHARLES C. WALLINGSFORD, Ogallala.

To New York City, for instruction in orthopedic surgery, from Fort Oglethorpe, Capt. CHARLES E. REMY, Johnstown; Base Hospital No. 116, from Camp Dodge, Lieut. BENJAMIN R. McGRATH, Grand Island.

New Hampshire

To Camp Custer, Battle Creek, Mich., base hospital, from St. Louis, Lieut. JOHN B. WARDEN, Whitefield.

To Fort Oglethorpe, for instruction, Lieuts. EARL P. CUSHMAN, Claremont; PHILIP McQUESTON, Nashua; ERNEST L. BELL, Plymouth; WILLIAM H. SHANAHAN, Somersworth.

To Fort Slocum, N. Y., for duty, from Fort Ethan Allen, Capt. WILLIAM H. MITCHELL, London.

New Jersey

To Fort Logon, Houston, Tex., base hospital, *from Fort Oglethorpe,* Lieut. MAURICE COHEN, Patterson.

To Fort Oglethorpe, for instruction, Lieuts. GEORGE B. VERBECK, Caldwell; HENRY T. WEBB, Elmer; THOMAS M. BARBER, Morristown; LYMAN B. HOLLINGSHEAD, Pemberton; IRVING F. CRAM, ROBERT HAMILTON, Wrightstown.

To Fort Riley, for instruction, from Camp Custer, Lieut. BENNETTE W. HOAGLAND, Woodbridge.

To New York City, Base Hospital No. 116, Lieuts. VICTOR S. SEIDLER, Montclair; FREDERIC A. ALLING, Newark.

Honorably discharged on account of being physically disqualified for active service, Lieut. GRANT E. KIRK, Camden.

New York

To Boston, Mass., Harvard Medical School, for instruction in orthopedic surgery, Lieut. DUDLEY J. MORTON, New York City; from Fort Ethan Allen, Lieut. ALFRED H. PARSONS, Great Neck.

To Camp Beauregard, Alexandria, La., base hospital, Lieut. STANLEY S. INGALLS, Parish.

To Camp Cody, Deming, N. M., base hospital, from Fort Oglethorpe, Lieut. HORD SHARP, New York City.

To Camp Devens, Ayer, Mass., base hospital, Lieut. ARTHUR H. TERRY, Jr., New York City.

To Camp Greenleaf, Fort Oglethorpe, Ga., Evacuation Hospital No. 6, from Cornell Medical College, Lieut. LOUIS GOLD, Brooklyn.

To Camp Jackson, Columbia, S. C., base hospital, and on completion to his proper station, Capt. GEORGE DRAPER, New York City.

To Camp Joseph E. Johnston, Jacksonville, Fla., base hospital, from Fort Oglethorpe, Lieut. JOHN T. WATKINS, New York City; as member of board for examination of command for tuberculosis, from Camp Bowie, Lieut. ROBERT E. PLUSKETT, Whitehall.

To Camp Lee, Petersburg, Va., base hospital, Capt. ROLAND O. MEISENBACH, Buffalo.

To Camp Mills, Garden City, L. I., N. Y., to examine command in his specialty, Capt. GEORGE A. SHARP, Beacon; from Fort Sheridan, Lieut. JOHN T. MacCURDY, New York City. For duty, from Camp Mills, Capt. JOHN F. W. MEAGHER, Brooklyn; Lieuts. LEIZER GRIMBERG, New York City; SAMUEL W. HAUSMAN, Ogdensburg; WARD W. MILLIAS, Rome; from Neurological *Institute*, Lieut. WILLIAM G. DICKSON, *Onconta; for temporary* duty, from New York, Lieut. ARTHUR P. POWELSON, Walden.

To Camp Taylor, Louisville, Ky., for duty, from Fort Ethan Allen, Lieut. RALPH E. ROBINSON, Belmont.

To Camp Upton, L. I., N. Y., to examine command for mental and nervous diseases, from Ann Arbor, Lieut. GEOFFREY C. H. BURNS, Central Islip.

To Camp Wadsworth, Spartanburg, S. C., base hospital, from Fort Oglethorpe, Lieut. ALBERT C. MARGULIES, Brooklyn.

To Fort Bliss, Texas, as division sanitary inspector, from Camp Green, Major JOHN T. SPRAGUE, St. George.

To Fort Foster, N. Y., for duty, Lieuts. JOHN D. BOWEN, Binghamton; RAYMOND J. DEVINE, Syracuse.

To Fort Oglethorpe, for instruction, Major EDWARD A. SOUTHALL, Buffalo; Capts. WILLIS S. COBB, Corning; REED B. BONECOU, Ithaca; EVERETT C. BRENNAND, New York City; Lieuts. LOWELL B. ECKERSON, ABRAHAM GOTTLEIB, GEORGE R. HORTON, JOHN H. REYNOLDS, Brooklyn; FREDERICK BERNSTEIN, Glen Cove; JACOB H. HIRSCH, Haverstraw; ADDISON H. BISSELL, JOSEPH M. LINETT, RUDOLPH D. ORTH, MAURICE M. POMERANZ, ROBERT SHAPIRO, MAX K. SILBERMAN, GROVES B. SMITH, New York City; MORRIS R. BRADNER, BERNARD McD. KRU, Warwick.

To Fort Riley, Evacuation Hospital No. 7, from Fort Riley, Capt. CALVERT M. DEFOREST, Canastoto.

To Fort Slocum, N. Y., for duty, from Fort Ethan Allen, Lieut. GEORGE E. STEVENSON, Himrod.

To New York City, as chief of the Medical Service, U. S. A. G. H. No. 1 from Camp Sherman, Major DUDLEY D. V. ROBERTS, Brooklyn; as chief of the surgical service in Base Hospital No. 116, from Washington, Major JOHN B. WALKER, New York City; Base Hospital No. 116, for duty, from Camp Devens, Capt. THEODORE J. ABBOTT, New York City; from Camp Meade, Lieut. WILLIAM BLANCARD, New York City; from Camp Mills, Capt. EDWIN G. ZABRISKIE, New York City; from Philadelphia, Lieut. WILLIAM S. GLENN, Jr., Brooklyn Orthopedic Hospital for instruction, from New York City, Capt. LEO B. MEYER, Lieut. ISAAC REITSFELD, New York City. To enlist the enlisted personnel of Base Hospital No. 116, Capt. HARRY C. W. SCHULTZ DE BRUN, New York City.

To Philadelphia, Pa., for instruction in orthopedic surgery, Lieuts. HARRY D. SONNENSCHEIN, New York City; EARL E. WANDERWERKER, Schuylerville.

To St. Louis, Mo., Washington University, for instruction in urology and dermatology, from Camp Jackson, Lieut. GEORGE B. UBEL, Salamanca.

To Walter Reed General Hospital, Takoma Park, D. C., for instruction in tuberculosis examinations, Capt. GOSE KREMER, New York City.

To Watertown, Mass., Watertown Arsenal, for duty, from Fort Ethan Allen, Lieut. ARTHUR L. TINKESS, La Fargeville.

To Williamsbridge, N. Y., United States General Hospital No. 1 for duty, Lieut. WALTER S. WOODRUFF, Mount Vernon.

To *his home and honorably discharged*, from Camp Upton, Capt. OSMAN F. KINLOCH, Troy.

North Carolina

To Camp McClellan, Anniston, Ala., base hospital, from Army Medical School, Lieut. HICKMANN RAY, Raleigh.

To Camp Sevier, Greenville, S. C., base hospital, from Fort Oglethorpe, Lieut. CARL W. BELL.

To Fort Oglethorpe, for instruction, Lieuts. ARTHUR W. DEANS, Battleboro; COLIN SHAW, Burgaw; RALPH L. DANIELS, Coldsboro; WILLIAM H. SLOAN, Garland; CARL P. PARKER, Garysburg; EDWARD C. ASHBY, Greensboro; DAVID T. LONG, Hurdle Mills; GEORGE R. PATRICK, Lowell; ROBERT L. PAYNE, Monroe; ALONZO H. MYERS, North Wilkesboro; FRANK B. GARRETT, Rockingham; ROBERT P. BECKWITH, Rosemary; SAMUEL S. MONTAGUE, Roxboro; FRANK W. H. LOGAN, Rutherfordton; JACOB H. ROZELLE, Salisbury; BURNICE E. MORGAN, GRADY A. MORGAN, Stocksville; HARRY G. THIGPEN, Tarboro; RALPH C. SADLER, Whiteville; James F. Robertson, Jr., Wilmington; JAMES C. BRASWELL, Jr., Wilson; ROBERT J. LOVILL, Wingate; JACK H. HALL, Woodsdale.

To New York City, Base Hospital No. 116, for duty, Lieut. WILLIAM E. YOULAND, Lakeview.

To Oklahoma City, Okla., for instruction in orthopedic surgery, from Camp Gordon, Lieut. HUGH A. THOMPSON, Raleigh.

To Washington, D. C., Washington Barracks, for duty, from Fort Ethan Allen, Lieut. JOHN THAMES, Wilmington.

North Dakota

To Camp Beauregard, Alexandria, La., base hospital, from Fort Riley, Lieut. GEORGE V. JAMIESON, Devils Lake.

To Fort Riley, for instruction, Capts. WILLIAM A. GERRISH, ADOLPHUS W. GUEST, Jamestown; Lieuts. HUGO MELLA, Bismark; JOHN G. ABBOTT, Hope; CAMPBELL SANSING, Valley City.

Ohio

To Army Medical School, Washington, D. C., for duty, Lieut. CHARLES S. HAMILTON, Columbus.

To Camp Cody, Deming, N. M., base hospital, from St. Louis, Lieut. WILLIAM S. NICHOLS, Cleveland.

To Camps Custer, Grant, Dodge, Funston, Fort Thomas, Camp Sherman, Fairfield, Ohio; Columbus Barracks, to investigate the control of venereal diseases and on completion to *Columbus, Ohio, for conference with the State Commissioner of Health of Ohio*, Capt. EUGENE F. McCAMPBELL, Columbus.

To Camp McClellan, Anniston, Ala., base hospital, from St. Louis, Lieut. ROY F. JOLLEY, Richwood.

To Camp Mills, Garden City, L. I., for duty from Camp Mills, Lieut. JOHN C. GEORGE, Dayton.

To Camp Wheeler, Macon, Ga., base hospital, from Fort Oglethorpe, Lieut. LEWIS A. OSTER, Cleveland.

To Fort Oglethorpe, for instruction, Lieuts. CLARK E. SHARP, Chillicothe; GEORGE B. FAULDER, JAMES B. STEWART, JAMES H. WARREN, Columbus; FREDERICK SWING, Harrison.

To Fort Riley, base hospital, Lieut. PATRICK S. MURPHY, Cleveland; for instruction, Lieut. GLEN E. CHENOWETH, Lima.

To New York City, Base Hospital No. 116, from Fort McPherson, Lieut. FLOYD W. McRAE, Jr., Cleveland.

To report to the governor of the state as medical adviser, Lieut. CHARLES S. HAMILTON, Columbus.

To St. Louis, Mo., Washington University, *for instruction in urology and dermatology, from Camp Custer, Lieut. MURREY B. McCONIGLE*, Toledo.

To his home and honorably discharged, from Camp Sherman, Capt. ELMORE E. ADEL, Columbus; from Fort Oglethorpe, Lieut. BERNARD R. LEROY, Athens.

Oklahoma

To Fort Riley for instruction, Lieuts. ROSCOE R. AULICK, Carson; WALKER R. MARKS, *Vinita; from* Camp Doniphan, Lieuts. RAYMOND H. FOX, Altus; DANIEL S. LEE, *Guymon;* CHARLES C. SIMS, Healdon.

To St. Louis, Mo., Washington University, for instruction *in urology* and dermatology, Lieut. JOOL S. HOOPER, Tulsa; from Camp Sherman, Lieut. CHONNER P. CHUMLEY, Oklahoma.

Oregon

To Camp Lewis, American Lake, Wash., for duty, from Camp Lewis, Major CALVIN S. WHITE, Portland.

To Fort Riley for instruction, Lieut. CHARLES F. ENGELS, Portland.

To St. Louis, Mo., Washington University, for instruction in urology and dermatology, Lieut. BENJAMIN N. WADO, Portland.

Honorably discharged on account of being physically disqualified for active service, Lieut. BENJAMIN F. DEVERE, Oakland.

Pennsylvania

To Army Medical School, Washington, D. C., for duty, Lieut. JAMES C. SMALL, Chambersburg.

To Atlantic City, N. J., Camden, Trenton and Newark, N. J., Providence, R. I., New Haven, Bridgeport and Hartford, Conn., for duty and on completion to his proper station in Washington, Major HENRY D. JUMP, Philadelphia.

To Boston, Mass., Harvard Medical School, for instruction in orthopedic surgery, Lieuts. JOHN H. ALEXANDER, BROWN FULTON, Pittsburgh.

To Camp Beauregard, Alexandria, La., base hospital, from Fort Oglethorpe, Lieut. ERNEST M. DORSETT, Philadelphia; from New York City, Lieut. THOMAS S. MEBANE, Wilkes-Barre.

To Camp Cody, Deming, N. M., base hospital, from Fort Oglethorpe, Lieut. JOHN E. NEWHOUSE, Pittsburgh.

To Camp Dix, Wrightstown, N. J., for duty, from Post-Graduate Hospital, Lieut. ROBERT E. DAVISON, Pittsburgh.

To Camp Doniphan, Fort Sill, Okla., base hospital, from Fort Oglethorpe, Lieut. JOHN P. MAUS, Philadelphia.

To Camp Green, Charlotte, N. C., base hospital, from Fort Oglethorpe, Capt. WILLIAM P. CLANCY, Clarendon; from New York City, Lieuts. JOSEPH G. FERNBACH, Philadelphia; ROY L. SCOTT, Sayre.

To Camp Joseph E. Johnston, Jacksonville, Fla., base hospital, from School of Roentgenology, Pennsylvania, Lieut. SAMUEL B. HARRIS, Norwood Station.

To Camp McClellan, Anniston, Ala., base hospital, from Fort Oglethorpe, Lieut. ALBERT J. WINEBRAKE, Scranton.

To Camp Taylor, Louisville, Ky., base hospital, from St. Louis, Lieut. THOMAS S. HICKS, Braddock; for temporary duty, base hospital, from Chickamauga Park, Lieut. HOMER P. PROWITT, Washington.

To Fort Bliss, El Paso, Texas, for duty, Lieut. HUGH M. SHANNON, Philadelphia.

To Fort Oglethorpe, for instruction, Capt. ALEXANDER R. KIDD, Connellsville; Lieuts. JESSE N. SWICK, Beaver Falls; JOHN C. CRIST, Chester; WILLIAM G. FRANCIS, Coatesville; DON D. BROOKS, Connellsville; DONALD B. COOVER, Gettysburg; PAUL M. BLACKBURN, Greensburg; PETER B. MULLIGAN, Hazelton; BARTON BROWN, Linden; SAMUEL FIRESTONE, Jr., McKeesport; HARKLEY C. ALBRIGHT, JOHN V. ALLEN, Jr., WILLIAM H. ANNESLEY, GEORGE F. BAIER, SAMUEL CHARTOCK, ABRAHAM E. COLCHER, JOHN M. CONNELLY, JOHN R. DAVIES, Jr., OMER R. ETTER, ISRAEL SPIERS, Philadelphia; ROY D. CHAMPLIN, Reading; CAREY C. BRADIN, JOHN R. FASON, *Tyrone;* ALBERT E. COUGHANOUR, Uniontown; ROBERT B. BROWN, RAYMOND T. FRANCIS, Waynesboro; JOSEPH F. DELPHIN, Wilkes-Barre; FRANCIS R. WISE, York; from New York, Lieut. CHARLES E. YOHO, Pittsburgh.

To Fort Riley, base hospital, Lieut. HENRY W. CATTELL, Philadelphia.

To Fort Sam Houston, Tex., for duty, from Camp Greenleaf, Lieut. FREDERICK V. LICHTENFELS, Pittsburgh.

To Fort Washington, Md., for duty, from Fort Ethan Allen, Lieut. CLARENCE E. LINCOLN, Wayne.

To *Hoboken, N. J., for* duty, from Rockefeller Institute, Lieut. PHILIP F. WILLIAMS, Philadelphia; from Takoma Park, Lieut. JAMES H. BALDWIN, Philadelphia.

New York City, Base Hospital No. 116, for duty, *from* Evans Dental Institute, Capt. CARLTON N. RUSSELL, Philadelphia; for instruction *in* orthopedic surgery, Lieut. HARRY O. POLLOCK, Wilmording.

To Philadelphia, Pa., for instruction in orthopedic surgery, Lieuts. FRANK P. McCARTHY, Erie; SCOTT A. NORRIS, *Homestead;* ISADORE M. LEAVY, Philadelphia; HENRY J. GILES, Pittsburgh; JAMES B. HELLER, Pottsville.

To St. Louis, Mo., Washington University, for instruction in urology and dermatology, Lieut. JAMES K. ANDERSON, *Pittsburgh.*

To his home and honorably discharged from Camp Stuart, Lieut. FRANK L. KNOX, Clayville.

To his home and honorably discharged on account of being physically disqualified for active service, from United States Army General Hospital, Lieut. SAMUEL BRISTER, *Philadelphia.*

Rhode Island

To Fort Oglethorpe, for instruction, Lieut. ARTHUR F. ANDERSON, Providence.

To New York City, Base Hospital No. 116, for duty, from Camp Devens, Capt. CHARLES H. HOLT, Pawtucket.

South Carolina

To Fort Bliss, Texas, as assistant division surgeon, *from Fort Oglethorpe,* Lieut. LAWRENCE R. KIRKPATRICK, Bennettsville.

To Fort Oglethorpe for instruction, Lieuts. HARRISON A. PRUITT, Anderson; HILLAND S. THOMAS, Chester; JOSEPH A. DILLARD, Columbia; JOHNSTON PEOPLES, *Estill;* LANDRUS W. WOOD, Greer; JOSEPH E. THOMAS, Jefferson; JOE P. JEWELL, Piedmont; LADSON D. BOONE, Romesville; GRADY S. CLINKSOALES, Starr; from Camp Sevier, Lieut. ASHLEY B. WEATHERSBEE, Belton.

To Philadelphia, for instruction in orthopedic surgery, Lieut. ROBERT T. FERGUSON, Gaffney.

To St. Louis, Mo., Washington University, for instruction in urology and dermatology, from Fort Oglethorpe, Lieut. JAMES M. WALLACE, Greeneville.

To his home and honorably discharged, Lieut. ANDREW T. BAIRD, Darlington.

South Dakota

To Camp Travis, Fort Sam Houston, Texas, base hospital, from Fort Oglethorpe, Lieut. WILLARD A. BATES, Northville.

To Fort Riley, for instruction, Lieut. WILLIAM E. M. DEVERS, Mitchell.

To his home and honorably discharged from Fort Oglethorpe, Lieut. GEORGE H. RICHARDS, Clear Lake.

Tennessee

To Camp Bowie, Fort Worth, Texas, base hospital, from St. Louis, Lieut. THOMAS A. MITCHELL, Nashville.

To Camp Gordon, Atlanta, Ga., base hospital, from Fort *Oglethorpe,* Capt. LEON L. MEYER, Memphis.

To Camp Sevier, Greenville, S. C., base hospital, from St. Louis, Lieut. DORSEY T. GOULD, Lawrenceburg; for duty, from Camp Sevier, Lieut. FLEETWOOD GRUVER, Nashville.

To Camp Oglethorpe, for instruction, Lieuts. LAWRENCE J. LINDSEY, Covington; LLOYD S. NEASE, Del Rio; CHARLES T. RICHARDSON, SEYMOUR H. ROWLAND, GETTIE T. SHEFFIELD, Memphis; PHILLIP J. TRENTZSCH, Rives; LONNIE O. WILKERSON, Stanton; EDWARD S. STEWART, Summertown; from Little Silver, Lieut. CLEVELAND PAYNE, Oakland.

Texas

To Fort Oglethorpe, for instruction, Lieuts. MAURY J. PERKINS, Alice; MATTHEW F. KREISLE, Austin; STERLING C. WOOD, Bessmay; WILLIAM L. HESTER, Burkett; IVISON GRIMES, Camden; GEORGE T. VAN ZANDT, *Cameron;* JOSEPH E. MAMS, Clayton; WALDO B. LAIN, Cooper; ELMORE G. BRITTAIN, Dallas; LUM M. DAVIS, Donna; JESSE P. LOCKHART, Eden; CHARLES W. GRAY, El Campo; ERWIN J. CUMMINS, THOMAS C. LIDDELL, KEVIN D. LYNCH, El *Paso;* WILLIAM C. WRIGHT, Farmersville; JAMES D. BOZEMAN, GILES A. DEASON, IVAN E. HIX, HOWARD D. MITCHELL, Fort Worth; HARRY P. HARBER, Galveston; EDWARD C. BLACKWELL, German; CLARENCE S. MURPHY, Groveton; CHARLES C. CLEVELAND, Hamilton; HENRY U. WOOLSEY, Hillsboro; CARL B. YOUNG, Jr., Houston; CHARLIE C. PARKS, Lancaster; DON PAUL JONES, Leckney; ST. JULIAN R. MURCHISON, Marshall; PERE M. KUYKENDALL, Moody; COLEMAN J. CARTER, Oakwoods; LOUIS H. COCKERHAM, Palestine; ROGER ATKINSON, Pleasanton; GEORGE E. GLOVER, Refugio; WILLIAM A. CHERNOSKY, Rosebud; HOWARD M. BUSH, GEORGE A. MUELLER, OLIVER H. TIMMINS, San Antonio; IVY STANSELL, Sanderson; THOMAS R. BEECH, Slaton; TILGHMAN O. DARBY, Sour Lake; JOHN F. CRAWFORD, Tolar; WILMER A. HADLEY, *Webster;* THOMAS W. HEDRICK, Wheelock; HARRY H. BROWN, Jr., *Yoakum.*

To Fort Riley, for instruction, Lieuts. ROBERT S. SUTTEN, Bartlett; GEORGE W. HOWARD, Dallas; SIMEON H. NEWMAN, El Paso; ROSCOE ETTER, Hubbard; JOSEPH E. McDOWELL, Shamrock; JAMIE D. STEPHENS, Temple; from Camp Cody, Lieut. ERNEST H. HAMILTON, Kilgore.

To New York City Orthopedic Hospital, from New York City, Lieut. QUINCY B. LEE, Wichita Falls.

To Oklahoma City, Okla., for instruction in orthopedic surgery, Capt. WILLIAM B. CARRELL, Dallas.

To St. Louis, Mo., Washington University, for *instruction,* Lieut. DEWITT SMITH, Dallas.

Vermont

To Fort Oglethorpe, for instruction, Lieut. JOSEPH A. CIMINERA, Burlington.

To Fort Riley, from Evacuation Hospital No. 7, Fort Riley, Capt. HENRY C. JACKSON, Woodstock.

To New York City, Base Hospital No. 116, from Fort Ethan Allen, Lieut. ROBERT I. MAYNARD, Burlington.

Virginia

To Camp Greene, Charlotte, N. C., base hospital, from Fort Oglethorpe, Capt. STANLEY H. GRAVES, Norfolk.

To Camp Lee, Petersburg, Va., base hospital, from Fort Oglethorpe, Capt. JAMES H. SMITH; Lieut. GREER BAUGHMAN, *Richmond.*

To Camp Mills, Garden City, L. I., for duty, from Camp Mills, Lieut. FRANK H. REDWOOD, Richmond.

To Camp Wadsworth, Spartansburg, S. C., base hospital, from Richmond, Lieut. LEVIN P. MAGRUDER, Richmond.

To Fort McPherson, Ga., for duty, Lieut. CLAUDE D. KELLAM, Norfolk.

Washington

To Camp Lewis, American Lake, Wash., base hospital, from Camp Lewis, Capt. WILLIAM G. CASSELS, Seattle; to examine the command for mental and nervous diseases, Capt. ALBERT C. STEWART, Fort Steilacoom.

To Fort Mason, Calif., Base Hospital No. 30, from San Francisco, Capt. NATHAN P. WOOD, Seattle.

To Fort Riley, for instruction, *Capts.* FRANK L. WOOD, Lyden; JAMES G. MATTHEWS, Spokane; Lieuts. GEORGE I. HURLEY, Hoquiam; KENNETH J. HOLTZ, Renton; GEORGE W. OVERMEYER, Seattle; WARREN J. HOUGH, Tacoma.

To report by telegraph to *the* Commanding General, Western Dept., for assignment to duty, Lieut. IRVING M. LUPTON, Spokane.

West Virginia

To Fort Oglethorpe, for instruction, Lieuts. WILBUR F. SHIRKEY, Jr., Charleston; CHARLES L. RUGGLES, Wellsburg.

To New York City, Base Hospital *No. 116, for duty, from* Pittsburgh, Lieut. LOWELL S. GOIN, Wheeling; for instruction in orthopedic surgery, from Louisville, Lieut. ALVAH L. PARSONS, Charleston.

To Walter Reed General Hospital, Takoma Park, D. C., for instruction in tuberculosis examinations, Capt. ALBERT L. GRUBB, Berkeley Springs.

Wisconsin

To Fort Riley, for instruction, Capt. GEORGE H. LAWRENCE, Fond du Lac; Lieuts. WILLIAM N. MOORE, Appleton; FRANK H. KENNEDY, Greenwood; JAMES H. FOWLER, Lancaster; JOHN J. WILKINSEN, Milwaukee; EDWARD W. HANSON, Three Lakes.

To Philadelphia, Pa., for instruction in orthopedic surgery, Lieut. MERRITT LAC. JONES, Wausau.

To St. Louis, Mo., Washington University, for instruction in urology and dermatology, from Camp Pike, Lieut. CHARLES B. RYDELL, Superior.

Wyoming

To Fort Riley, for instruction, Lieut. ROBERT H. SANDERS, Kemmerer.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

New Officers.—At the annual meeting of the Tehama County Medical Society at Red Bluff, Dr. Frank J. Bailey was elected president; Dr. Walter Gavey, vice president, and Dr. Frank L. Doane, secretary-treasurer, all of Red Bluff.

Personal.—Dr. Melvin L. Moore, Los Angeles, who has been ill at his home for several days, is convalescent.——Dr. Clelia D. Mosher, medical adviser of women at Leland Stanford University, Palo Alto, has started for France to engage in welfare work for the Red Cross.——Dr. Edith E. Johnson, Palo Alto, has succeeded Dr. Mosher as medical adviser to students.——Dr. George A. White, Sacramento, who has been ill for several weeks, is now reported to be convalescent.——Dr. Rexwald Brown, Santa Barbara, is reported to be in a critical condition at Johns Hopkins Hospital, Baltimore.

Popular Medical Lectures.—A course of popular medical lectures will be given at the Stanford University Medical School, during January, February and March. The schedule of these lectures is as follows:

January 4: "The Control of Vice Diseases Among Troops Through Civil and Military Cooperation," Colonel Louis M. Maus, U. S. Army.

January 18: "Surgery of the Present War," Dr. Leo Eloesser.

February 1: "Industrial Fatigue," Prof. E. G. Martin.

February 15: "Food Poisoning from Canned Goods," Dr. Ernest C. Dickson.

March 1: "Recent Experiences of a Medical Man in the War-Zone," Dr. William P. Lucas, Professor of Pediatrics, University of California.

March 15: "Circulation of the Blood," illustrated with moving pictures, Dr. Arnold A. D'Ancona.

CONNECTICUT

Personal.—Dr. Frederick C. Goldstein has succeeded Dr. Louis H. Wilmot as city health officer of Ansonia.——Dr. Seymour L. Spier, police surgeon of New Haven, who was operated on, November 30, is reported to be convalescent.

Medical Milk Commission Formed.—At the November meeting of the Bridgeport Medical Association, a medical milk commission was appointed, consisting of Dr. Charles N. Haskell, chairman, Dr. Walter Brown, Dr. Fessenden L. Day, C. E. Calvin and J. H. Bowdry. This commission will cooperate with the department of health in the supervision of certified milk to be sold in the state.

State Health Association Organized.—At a meeting of health officers and other men in Hartford, December 6, the Connecticut Public Health Association was organized, and the following officers were elected: president, Dr. Stephen J. Maher, New Haven, chairman of the state tuberculosis commission; vice president, Dr. Charles J. Bartlett, state bacteriology; secretary, Dr. Charles P. Botsford, Hartford, and treasurer, James A. Maher, Bridgeport. It was decided to organize subsidiary committees in each county of the state.

ILLINOIS

Smallpox.—There are said to be forty cases of smallpox in Hanover, Jo Daviess County, and the disease has also appeared in Elizabeth and Galena. The state board of health has the situation in hand.

Tuberculosis in Chicago.—As a result of the first accurate tuberculosis survey made in Chicago, Health Commissioner Robertson reports that there are between 60,000 and 70,000 cases of tuberculosis in the city.

Antitoxin Supply Cut Off.—Health Commissioner Robertson has received notice from the state health department to cut off the supply of diphtheria antitoxin on account of the appropriation for this purpose having been expended.

Personal.—Dr. Clara E. Hayes of the medical staff of the Peoria State Hospital has been appointed superintendent of the State Training School for Girls, Geneva.——Dr. Herman M. Adler, Chicago, criminologist of the state department of public welfare, is head of the Voluntary Mental Hygiene Consulting Commission, which was opened, December 17, at the Cook County Psychiatric Hospital.——Major Richard J. McDonnell, Chicago, has resigned as medical adviser of the One Hundred and Eighth Engineers.——Major Eugene G. Clancy, Chicago, has been made director of field hospitals of the division.

Voluntary Medical Units Ready.—A medical unit and an ambulance unit have been mustered into the state service. The first unit of the Medical Corps is headed by Major Charles E. Boynton, and consists of Capts. E. Stillman Bailey, and Hugh R. Scofield, and Lieuts. Adrian R. Karreman, Ralph R. Holmes, John G. Campbell, James L. Smith and William J. Timmer. The ambulance company is commanded by Capt. C. M. Price, and is assisted by Lieuts. Guy E. Beard, W. S. Hubbard and R. I. Humphrey. The ambulance unit was enlisted from the employees of the McCormick plant of the International Harvester Company, which donated the ambulance and equipment to the organization.

KENTUCKY

Social Service Exchange.—A social service exchange has been established by which there will be a coordination of the charitable agencies of Louisville cooperating. A large proportion of these agencies have already affiliated with the exchange. This exchange will prevent duplication of effort, facilitate relief and promote efficiency. The expenses will be borne by the Federation of Social Agencies.

New Appointments.—The following appointments have been made by the Board of Public Safety of Louisville: Dr. J. N. Sebastian, city physician, western district; Dr. W. W. Smith, sanitary inspector, eastern district; Dr. E. L. Whedbee, negro, sanitary inspector to look after the indigent negroes. Drs. Florence Brandeis and Annie Veech, medical inspectors of schools; Dr. L. A. Crutcher, sanitary inspector, western district.

LOUISIANA

Appointed to Sanitary Corps.—John Henry O'Neal, sanitary engineer for the state board of health, has gone into the Sanitary Corps and has already entered the service. He has been granted leave of absence from his duties on the state board of health during the continuance of the war.

New Society Meets.—At the annual meeting of the Orleans Parish Medical Society, held in New Orleans, December 9, a service flag was raised, the central star of which was in honor of Rudolph Matas, M. R. C., U. S. Army. The following officers were elected: president, Dr. Paul J. Gelpi, Jr.; vice presidents, Drs. Frank J. Chalaron, Hector E. Bernadas and Everard W. Mahler; secretary, Dr. Paul T. Talbot, and treasurer, Dr. Henry W. E. Walther.

Medical Examiners in Session.—The State Board of Medical Examiners concluded its session, December 1. In the reorganization of the board, Dr. Leon J. Menville, Houma, succeeds Dr. John G. Martin, Lake Charles, as president, Dr. Thomas E. Wright, Monroe, succeeds Dr. Stuart L. White, Ruston, as vice president, and Dr. Edmund D. Martin, New Orleans, was elected secretary, succeeding Dr. James A. Henderson, who is in the military service.

MARYLAND

Personal.—Dr. Lewis A. Griffiths of Upper Marlboro has been appointed by the President to be inspector of explosives for the state of Maryland. Dr. Griffiths has been a member of the state board of medical examiners for the past fourteen years and has also served on the state board of health.——Capt. Clarence B. Farrar of the Canadian Army Medical Corps, a former Baltimorean, who has been for the past two years in charge of a large hospital at Coburg for returned Canadian soldiers who have suffered from shell shock and various types of mental disorders as a result of the war, spoke at a special medical meeting in Osler Hall, Baltimore, on December 14.

MISSOURI

Honors Paid Dead Officer.—Memorial services were held at Kansas City recently in honor of Lieut. William E. T. Fitzsimmons, M. R. C., U. S. Army, Kansas City, the first American medical officer to be killed in France. The meeting was attended by the consuls of all the allied nations.

Personal.—Dr. J. Adolph Gandy, Valley Park, St. Louis County, while crossing the Frisco tracks, November 24, was struck by a train and seriously injured.——Dr. James C. Welch, Jefferson City, formerly physician at the State Penitentiary, who had been charged with bribery, was acquitted, November 24.——Dr. Robert F. Hyland, St. Louis, is under treatment at St. John's Hospital, St. Louis, on account of injuries received in a collision between his automobile and a motor truck recently.

NEW YORK

Grenfell in Rochester.—Dr. Wilfred T. Grenfell, Labrador, gave a lecture under the auspices of the Commonweal Club, Rochester, December 8.

New Officers for Academy.—At the annual meeting of the Elmira Academy of Medicine, December 5, Elliot E. Bush, Elmira, was elected president; Dr. Oscar J. Bowman, Horseheads, vice president; Dr. J. Lee Kinner, Elmira, secretary, and Dr. Abraham Lande, Elmira, treasurer.

New York City

New Hospitals Incorporated.—At a special meeting of the State Board of Charities, December 12, the applications for incorporation of the Carson C. Peck Memorial Hospital, Brooklyn, and the Mercy Hospital, at Cazenovia Park, Buffalo, were approved. A dispensary license was granted to the Greenpoint Hospital, Brooklyn, of the Department of Public Charities. Action on the application for the incorporation of the Hebrew Convalescent Home at 235 West One Hundred and Twentieth Street and for the institution planned by the Committee for the Care of Jewish Tuberculous was deferred.

Pediatricians Plan to Solve War Problem.—At the stated meeting of the Section on Pediatrics of the New York Academy of Medicine, December 13, the subject of malnutrition in schoolchildren was discussed. Dr. Henry Dwight Chapin, New York, read a paper entitled, "The National Danger from the Defective Development of Growing Children in Time of War," in which he presented statistics showing that malnutrition is greatly on the increase among the schoolchildren of New York. His conclusion was that there are 120,000 children suffering from malnutrition, or on the borderline, in the public and parochial schools of the city. A motion was carried providing for the appointment of a committee of pediatricians to investigate existing conditions in reference to malnutrition, to act in an advisory capacity in cooperation with other relief agencies working along similar lines, and to keep a record furnishing information as to what service the individual members of the section were prepared to contribute to the solution of this problem. The endeavor will be made to work out a plan of relief that may serve as a standard for other cities.

OHIO

Communicable Diseases.—Smallpox is reported to be epidemic in the village of Monroe and several outlying sections of Middletown, where about thirty cases have been reported. ——Schools, churches and lodge halls of Malinta have been closed on account of an epidemic of scarlet fever.——The smallpox epidemic at Tarlton is reported to be well under control.

Councillor District Meeting.—The annual meeting of the First Councillor District Medical Society was held in Cincinnati, December 5, under the presidency of Dr. William Kelley Hale, Wilmington. Dr. Francis M. Fitton, Hamilton, was elected president, and Dr. Eric R. T. Wachtman, Cincinnati, secretary-treasurer. The afternoon session was held in the newly completed medical school building of the University of Cincinnati.

Hospital Notes.—The state department of health has recommended that a tuberculosis hospital be established for Crawford, Wyandot, Seneca, Hancock and Wood counties. During 1916, 168 deaths were said to have occurred in this district from tuberculosis.——A conference was held in Columbus, December 6, between orthopedists of the state and the hospital commission regarding the policies to be adopted in the proposed State Hospital for Crippled Children in which they agreed that the hospital should start with a limited number of patients, that its service should be broadened slowly, and that patients after operation should be retained at the hospital for education to fit them for useful work thereafter.

Personal.—Dr. Edward J. Schwartz, for fifteen years health officer of Salem, has resigned to accept a position as director of communicable diseases in the state department of health. ——Dr. Julius H. Jacobson has resigned from the staff and board of St. Vincent's Hospital, Toledo.——Dr. Gertrude H. Transeau has passed an examination for assistant epidemiologist in the state department of health.——Dr. William H. Rabberman, Forest, froze both feet while answering a professional call, December 10.——Dr. William C. Marshall, district physician of Dayton, has resigned, and will locate in Selma.——Dr. Frank H. Williams, Portsmouth, has been appointed local surgeon of the Chesapeake and Ohio Railway, succeeding Dr. Orin W. Robe, Portsmouth, who has been called to the colors.——Dr. Rush R. Richison, Yellow Springs, has been appointed superintendent of the district tuberculosis hospital, Springfield.——Dr. Frank P. Corrigan, Cleveland, has started for his new post of duty in Chile, where he is in the employ of the Chilean Exploration Company.

Cincinnati

Public Health Officers Organize.—The Cincinnati Public Health Council was organized at the Cincinnati General Hospital, November 23, and health officer, Dr. John H. Landis, was elected temporary chairman.

Research Society Elects Officers.—At the annual meeting of the Cincinnati Research Society, Dr. Jacob L. Tuechter was elected president; Dr. Meyer L. Heidingsfeld, Cincinnati, vice president, and Dr. Raphael Isaacs, secretary.

Physicians Appoint Fund Trustees.—Dr. John H. Landis, president of the Cincinnati Academy of Medicine, November 12, appointed Drs. William D. Porter, Benjamin K. Rachford, J. Ambrose Johnston, Frank W. Langdon and John W. Murphy, trustees of the $5,000 which was subscribed recently for the benefit of Cincinnati physicians in the military service.

Personal.—Dr. Charles A. L. Reed, who has been seriously ill in Atlantic City with hemiplegia consequent on an infectious thrombosis, is reported able to be up and around. ——Dr. Oliver P. Holt has resigned as a member of the medical staff of the General Hospital.——Dr. Arthur C. Bachmeyer, superintendent of the Cincinnati General Hospital, has requested that his salary be reduced from $4,500 to $2,100 a year during the period of the war, as he is also in active service as a captain in the Medical Reserve Corps.

OKLAHOMA

Personal.—Dr. Francis B. Fite, Muskogee, has been appointed a member of the State Board of Education, to succeed himself.

Smallpox at Lawton.—The conditions at Lawton regarding smallpox and other communicable diseases are so acute that the chief surgeon of Camp Doniphan has sent a letter to the governor of the state asking him to immediately take steps to have Lawton quarantined from the state. The governor thereupon assigned state health officer Dr. J. W. Duke, Guthrie, and his assistant, Dr. Herbert V. L. Sapper, Oklahoma City, to go to Lawton and make a preliminary survey of the situation.

OREGON

Detention Home for Women.—Kelly Butte, the subjail, is to be made the detention quarters and hospital for women found to be suffering from venereal disease. The committee has recommended to the county commissioners that the hospitals be put in condition immediately for the detention and treatment of these women. The cost for the next six months is estimated at $10,000.

Personal.—Dr. William M. Campbell, Portland, has been commissioned major and chief surgeon of the Oregon National Guard.——Dr. Esther C. P. Lovejoy, Portland, who is at present serving in France, is reported to have been commissioned first lieutenant by the French government.——Dr. Earl Smith, Portland, has been appointed coroner of Multnomah County, succeeding Dr. Ferdinand H. Dammasch, resigned to enter the military service.

PENNSYLVANIA

Anniversary of Academy.—The twenty-second anniversary of the founding of the Harrisburg Academy of Medicine was celebrated, December 7, at the academy in connection with the Dauphin County Medical Society. The address of the evening was delivered by Major Charles A. E. Codman, Philadelphia, M. R. C., U. S. Army.

Personal.—Dr. Rollen L. Shinaberry, Scranton, was shot and seriously wounded, December 10, by a man believed to be of unsound mind.——Capt. Lauren C. Thomas, M. R. C., Latrobe, has been given an honorable discharge from the service on account of ill health.——Dr. John W. Luther, Palmerton, is reported to be seriously ill.——The house of Dr. James R. Gormley, Dutch Ridge, near Beaver, was destroyed by fire, December 5, and Dr. Gormley narrowly escaped death.

Philadelphia

Babies' Hospital Campaign.—December 11, a whirlwind campaign to raise $175,000 for the Babies' Hospital began, and, December 15, had totaled $92,520. On the fourth day of the crusade, the teams turned in $20,190.

Heroin Seized.—With an arrest in a house at Green and Sixteenth streets recently, 40 ounces of pure heroin were seized, the largest single seizure of narcotics ever made in this city. The man arrested is under $10,000 bail.

Dinner to Women Doctors.—The board of corporators and the faculty of the Woman's Medical College of Pennsylvania gave a dinner, December 7, in honor of three alumnae of the college who are about to sail for France. These are Drs. Marie K. Formad, Marry Getty and Laura Hunt.

Personal.—Dr. Elizabeth M. Moyer, Baltimore, addressed the Medical Society of the Women's Hospital of Philadelphia, December 17, on "Radium Therapy."——Dr. Bernard Kohn has been appointed temporary director of school medical instructors to fill that position during the absence of Dr. Walter S. Cornell, now major in the Medical Reserve Corps.

WISCONSIN

Physicians Appeal.—An appeal was filed in the circuit court, November 28, in the case of Drs. Frederick C. Gessner, William F. Becker, Herbert W. Powers and William F. Wegge, who had sued Milwaukee County for $275 each for expert witness fees. The appellants testified in an insanity case, and claimed fees of $50 a day each, but the county board estimated the value of their services at $4 a day.

Hospital Notes.—The health committee of the Milwaukee Society of National Defense has adopted resolutions urging the governor to include in the call for a special session of the legislature a bill permitting the merging of the Emergency and County hospitals.——In the campaign to raise $500,000 for the new Columbia Hospital, Milwaukee, more than half the desired amount has already been secured.——Dane County Anti-Tuberculosis Sanatorium, largely a gift from Dr. Charles H. Vilas, Madison, a member of the board of regents of the University of Wisconsin, was opened for patients, December 1. About $30,000 has been expended in this work, and the sanatorium consists of an administration and an infirmary building and two cottages, furnishing accommodation for thirty patients.——The Tri-County Tuberculosis Sanitarium for Ashland, Bayfield and Iron counties is now an assured fact, as they county board of Bayfield County has authorized an appropriation of $30,000, and the Iron County board one of $20,000 for the same purpose.

Personal.—Dr. George C. Ruhland, Milwaukee, health commissioner, who relinquished his office to accept army service, and who has been on duty at Fort Sill, Okla., has been honorably discharged, and will resume his duties, January 1. Dr. Lewis J. Daniels, health commissioner ad interim, relinquished the position as by previous agreement.——Lieut. Ladislaus Louis Adamkievicz, assistant surgeon, U. S. Navy, Milwaukee, was rescued when the United States destroyer *Jacob Jones* was sunk by a submarine.——Dr. Thaddeus D. Smith, Neenah, who was wounded in an air raid over an American base hospital in France a short time ago, is returning to America, invalided.——Dr. Peter J. Christofferson, Waupaca, was seriously injured by the overturning of his automobile, December 4.——The house of Dr. James Hittner, Seymour, was destroyed by fire, November 19, at a loss of $12,000, little more than half of which was covered by insurance.——Dr. Gilbert E. Seaman, Milwaukee, has been made chief surgeon of the Thirty-Second Division at Camp McArthur, Waco, Texas.

CANADA

Relief for the Blind.—According to Sir Frederick Fraser, superintendent of the School for the Blind, Halifax, N. S., a committee for relief work among those blinded in the recent disaster in that city has commenced. The situation is appalling, as there have been more than 210 persons blinded through the terrible explosion.

Hospital News.—Lieut.-Col. P. W. H. McKeown, Toronto, O. C. Kitchener Hospital, Brighton, England, has applied for six months' leave of absence, and will visit Ireland.——The board of consultants of the Canadian Hospitals Military Commission is inspecting the military hospitals in Toronto and vicinity. They were accompanied on their tour of inspection by Lieut.-Col. E. Stanley Ryerson, A. D. M. S., Toronto.——The organization of the new Canadian special hospitals in England is authorized as follows: Westcliffe Eye and Ear Hospital, Folkstone, 400 beds; King's Canadian Red Cross Hospital, Bursley Park, 300 beds; affiliated hospital, Clarence House, Roehampton, 106 beds.——From London, December 14, it is announced that Major Philip Burnett, Montreal, is appointed to command the Red Cross Hospital at Buxton, replacing Col. Frederick Guest, St. Thomas, Ont. Major Lewis R. Murray, Sussex, N. B., is to command Uxbridge Convalescent Hospital, replacing Lieut.-Col. William Webster, Winnipeg, Manit., who assumes command at Bramshott, replacing Major Henry E. Kendall, Halifax, N. S. Major Gilbert B. Peat, Andover, N. B., is to command the Patricia Hospital at Ramsgate, replacing Lieut.-Col. Alexander J. Mackenzie, Toronto, Ont., who assumes charge of the medical section at Ramsgate. Capt. J. Adrien Grenier, St. Tite, Que., is gazetted flying officer.

GENERAL

Urges Efficient Medical Education for Negroes.—At its annual meeting, held in Memphis, November 15, the Southern Medical Association adopted several preambles and a resolution pointing to the necessity of perpetuating and making more efficient negro medical education in the United States.

Rockefeller Foundation Budget.—The Rockefeller Foundation budget for war relief expenditures in 1918 will total $5,050,000, with a possible addition of $5,000,000. This budget was approved by the trustees, December 11. The proposed expenditure includes $3,345,000 for the work of the International Relief Board, $424,000 of which is for the use of the tuberculosis commission in France.

Fenger Memorial Fund.—The directors of the Fenger Memorial Fund announce that the sum of $500 has been set aside for medical investigation, the money to be used to pay a worker, the work to be done under direction in an established institution, which will furnish the necessary facilities and supplies free. It is desirable that the work should have a direct clinical bearing. Applications with full particulars should be addressed to Ludvig Hektoen, 637 South Wood Street, Chicago, before Jan. 15, 1918.

Seaboard Railway Surgeons Meet.—The twenty-second annual meeting of the Seaboard Medical Association of Virginia and North Carolina was held at Norfolk, Va., December 4-6, under the presidency of Dr. Kirkland Ruffin, Norfolk, Va. Kinston, N. C., was chosen as the next place of meeting, and the following officers were elected: president, Dr. Ira M. Hardy, Kinston, N. C.; vice presidents, Drs. William L. Harris, Norfolk, Va.; Henry W. Carter, Washington, N. C., and Philip St. L. Moncure, Norfolk, Va.; secretary, Dr. Clarence Porter Jones, Newport News, Va., and treasurer, Dr. George A. Caton, Newbern, N. C.

Correction.—In the discussion by Dr. Alfonso G. Castelli, New York, on the paper by Drs. Lewellys F. Barker and Thomas P. Sprunt, Baltimore, which appeared in The Journal, December 8, p. 1926, it is stated:

> "We may start with 0.1 gm. of iron arsenate in 1 c.c. of solution, to be administered every day, children and undersized patients accordingly, and the dose may be increased up to 0.7 gm."

This should be:

> "We may start with 0.01 gm. (1 centigram) of iron arsenate in 1 c.c. of solution, to be administered every day, children and undersized patients accordingly, and the dose may be increased up to 0.07 gm. (7 centigrams)."

Bequests and Donations.—The following bequests and donations have recently been announced:

The ambulance company of Major John A. Hawkins, stationed at Allentown, Pa., a donation of more than $4,000, raised by the Automobile Club of Pittsburgh and the Allegheny County Medical Society.

Alumni Association of Jefferson Medical College, a bequest of $10,000, by the will of Dr. Joseph M. Malatesta.

New York Post-Graduate Medical School and Hospital, $5,000, by the will of Cora V. R. Catlin.

Hahnemann and St. Luke's hospitals, Philadelphia, each $30,000, by the will of William H. Keim.

Michael Reese Hospital, to found two rooms in memory of his two daughters, in the Chicago Jewish Orphan Asylum, $1,000, and Chicago Home for Aged Jews, $1,000, by the will of Simon Florsheim.

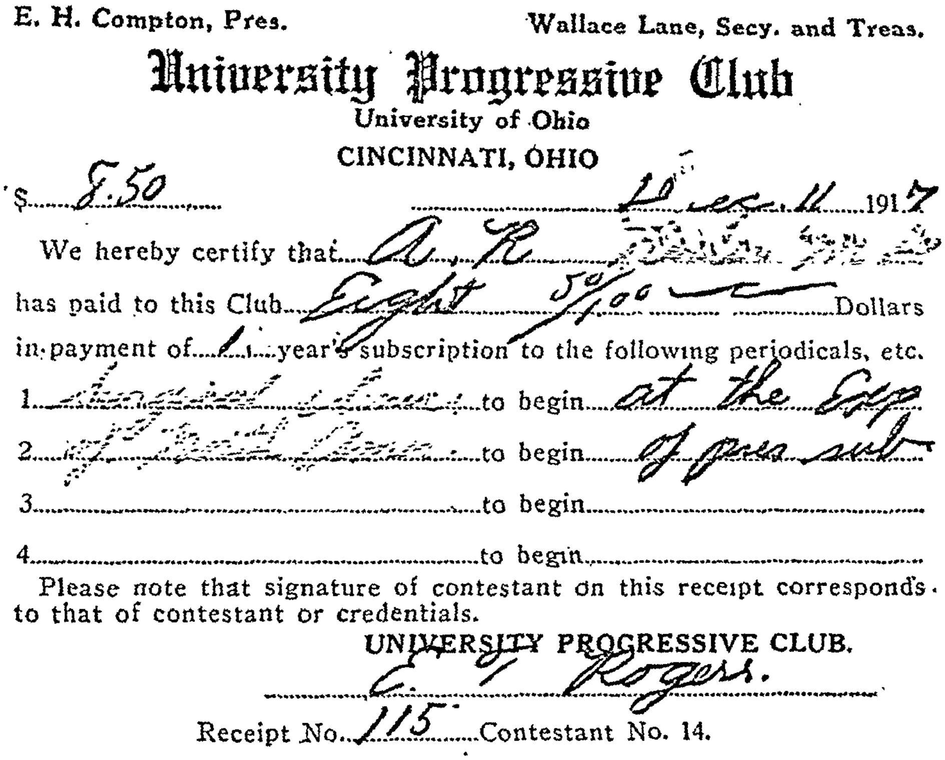
Philadelphia Home for Incurables, $1,000, and Home of the Merciful Saviour for Crippled Children, $300, by the will of Mary D. Day.

American Red Cross Commission, a donation of $250,000 for Italian wounded and needy refugees, by William K. Vanderbilt.

Presbyterian Hospital, Chicago, $10,000, by the will of Mrs. Mary R. Harris.

Chief of Bureau of Animal Industry Dies.—Alonzo Dorus Melvin, aged 55, chief of the Bureau of Animal Industry, Department of Agriculture, Washington, D. C., and the foremost figure of the government in combating foot-and-mouth disease and other diseases of cattle, died suddenly at his home in Washington, December 7, after a hemorrhage of the lungs. He was a native of Illinois, and a graduate in veterinary medicine from the Chicago Veterinary College in 1886. He at once entered the service in the United States Department of Agriculture, and transferred to Baltimore a year later. In 1890, he was sent to Liverpool to inspect animals and vessels from the United States, and two years later was placed in charge of the meat inspection in Chicago. He was made chief of the inspection division in 1895, and chief of the bureau, Dec. 1, 1905. Dr. Melvin was a member of the advisory board of the Hygienic Laboratory, U. S. P. H. S., was the president of the American Veterinary Association in 1909, and was an honorary associate of the Royal College of Veterinary Surgeons, London.

Once More a Warning.—Last week attention was called to a subscription swindle now being worked among physicians similar to a method worked at various times during the last few years. The individual presents himself as a contestant for a prize in the form of a scholarship to be awarded by an educational association to the one obtaining the most subscriptions during a certain period of time. It is worked under different names. We have called attention to it as the National Educational Association, the Cornell Educational Association, The United Students' Aid Society, and last week as the Advance Society of the University of Illinois. The latest form, the University Progressive Club of Cincinnati, is herewith reproduced.



E. H. Compton, Pres. **Wallace Lane, Secy. and Treas.**

University Progressive Club
University of Ohio
CINCINNATI, OHIO

$ 8.50 Dec. 11 1917

We hereby certify that A. R. [illegible]

has paid to this Club Eight 50/100 Dollars

in payment of 1 year's subscription to the following periodicals, etc.

1. [illegible] to begin at the Exp
2. [illegible] to begin of pres sub
3. to begin
4. to begin

Please note that signature of contestant on this receipt corresponds to that of contestant or credentials.

UNIVERSITY PROGRESSIVE CLUB.
Rogers.

Receipt No. 115 Contestant No. 14.

Form used by subscription swindlers. (*See item, "Once More a Warning."*)

Physicians should be on the watch for these swindlers, and should not pay money to agents whom they do not personally know.

LONDON LETTER

London, Nov. 20, 1917.

The War

DECREASE OF INSANITY

It is a curious fact, for which several explanations may be suggested, that during the war the number of the insane has decreased year by year. According to the returns for 1916, which have just been published, the number under care in England and Wales was 134,029, Jan. 1, 1917, as compared with 140,466, Jan. 1, 1915—a fall of 3,159 during the year 1916. If the average annual increase during the ten years previous to 1915 had been maintained, the number would have been 144,968—nearly 10,000 in excess of the number recorded. The relative sex percentages under care in 1916 were: males, 45.7, females, 54.3, against 46.2 and 53.8, respectively, in 1914. There were nearly 2,000 mental and nervous patients in the military hospitals, some of whom probably will eventually be certified as insane. This partly accounts for the disparity in the two sexes. Of the male attendants in the lunatic asylums, more than 50 per cent. have joined the army.

GERMAN HONORS RENOUNCED BY BRITISH SCIENTISTS

A note on membership of German academies and scientific societies has been circulated among the fellows of the Royal Society over the signatures of the following professors: Dr. W. M. Bayliss (physiology, University College, London); Sir James Dewar (experimental philosophy at Cambridge); Sir David Ferrier (neuropathology, King's College, London); Dr. J. N. Langley (physiology, Cambridge); Sir W. H. Perkin (chemistry, Oxford); Sir Ronald Ross (tropical sanitation, Liverpool University); Dr. C. S. Sherrington (physiology, Oxford); Dr. E. H. Starling (physiology, University College, London):

"The declaration of war by Germany against Russia and France was received with enthusiasm by practically every section of the German nation. The professors, who form the backbone of the German scientific academies and societies, were prominent as a whole in arousing this enthusiasm. It is largely due to them that a belief was created in German minds that Germany was superior to other nations, and that in consequence it was only just and right that German power over other nations should be extended. No German scientific academy or society has, so far as we know, issued any protest against the many infringements of humanity and of international law which have been characteristic of the German conduct of the war. The members of the Royal Society doubtless reprobate the action of the German government in bringing on the war, and its methods of conducting it, as much as any other section of British folk. It seems, therefore, incongruous that fellows of the society should continue to announce in the year-book of the society, in "Who's Who," or elsewhere, their membership of German academies and scientific societies as an honor which they value. It seems more consistent with the actual state of affairs that such mention should be omitted. Some fellows of the society have, we understand, already adopted this course with a view to bringing home to German scientific men that learning and research cannot be divorced from public conduct. Others with whom we have spoken intend to do so. Our occupations have prevented us from obtaining the opinions of the fellows generally, but as we believe that there is a widespread desire for common action, we venture to call attention to the matter. We intend to omit mention of German academies and societies."

A SPECIALIZED MEDICAL SERVICE FOR THE AIR FORCE

The establishment of the air force as an independent service instead of a branch of the army or navy, as it has been up to the present, is now arranged. Among the changes introduced is a specialized medical service. Flying men are subject to many peculiar physical disabilities, and research into the methods of prevention and cure has advanced very rapidly. So long, however, as the flying services remained merely as appendages of the army and navy, it was difficult to provide for their study and for the special treatment of the patient. Knowledge on the subject is limited almost entirely to those few medical officers and physicians who have had considerable numbers of flying men continuously under their care. It is necessary at once to take special measures to provide separate accommodation for the patients and a separate staff to concentrate on the problems that have arisen. The mere selection of candidates for the flying services has become a highly specialized business, and the standard of fitness required for flying is diverging from the standard required for the ordinary naval and military services. There are many minor physical imperfections which render a man unfit for flying, but which if treated early may be remedied. Still more important, many precautions have to be taken to enable pilots to maintain their fitness under the severe conditions of modern air warfare.

PARIS LETTER

Paris, Nov. 22, 1917.

The War

CHILLING OF THE FEET AS PREDISPOSING TO TETANUS

At a recent meeting of the Académie de médecine, Dr. H. Vincent, professor at the Val-de-Grâce Military Medical School, discussed the subject of tetanus provoked by frosting of the feet of the combatants. Vincent's experimental research has shown that if one injects the leg of a guinea-pig with tetanus bacillus spores, without the toxin, and then subjects the leg to cold and wet by means of continuous irrigation with water for two hours or more, tetanus develops, often acute or splanchnic. These experiments fulfil the etiologic conditions identical with those causing frosting of the feet in soldiers. Dry cold does not have the same effect. It is the prolonged maceration resulting from standing in the water in the trenches for many hours which is responsible for the chilling of the feet, the edema and the trophic disturbances. The tetanus bacillus spores get into the abrasions on the feet. Cold (15 C.—59 F., or below) annuls the phagocytic power of the leukocytes against the spores. The bacilli find a fertile culture medium in the edematous fluids as the tissues are warmed up, and the ultimate adsorption of this culture medium is equivalent to an injection of tetanus toxin. The symptoms of acute tetanus supervene in spite of prophylactic injections of antitetanus serum, no matter how potent it may be. The underlying tissues remain edematous for some days. The constriction caused by the leggings, which shrink under the influence of the imbibition of the water, favors the continuance of the edema, and hence the production of tetanus. It would be expedient, circumstances permitting, to empty the trenches of water, to loosen the puttee straps or use impermeable cloth leggings. Among the individual measures to be recommended, the most important is to wear large shoes, carefully greased or oiled, and woolen socks impregnated with grease containing some formaldehyd. The soldier should, whenever possible, remove his shoes for an hour or two, rub and dry his feet, and anoint them with some fatty substance. Men presenting the first symptoms of freezing, pains, etc., should be sent to a warm place near by where they can be treated by rubbing with alcohol.

RENOVATION OF COTTON COMING FROM MILITARY HOSPITALS

The Service de Santé (army medical department) uses enormous quantities of cotton. Paris alone uses at least 2,000 kg. a day. M. R. Villey, a chemist, has proposed to treat this soiled cotton so that it can be used again. The manipulation and transport of the cotton favors the dissemination of pyogenic organisms; hence certain precautions must be taken, notably to place at the disposition of the hospitals metal boxes that can be hermetically closed. The method of procedure is as follows: The hospitals sort out the cotton that is not too much soiled. The cotton which is wholly unfitted for further use is burned. The remaining cotton is conveyed, at regular intervals, to a designated place in town and from there to the sterilizing station, where it is subjected to a chemical treatment and transformed into absorbent cotton. It is important to free the cotton of all fatty substances which envelop the fibers like a greasy insulating sheath. To accomplish this result, the cotton is boiled for ten or twelve hours in soda lye, or, preferably, the cotton is autoclaved under pressure for about three hours, the steam containing a carbonate of soda lye. The cotton, freed of its fat sheath, is taken out of the autoclave, and is well washed in a tub provided with a strong paddle. It is then dried in a special turbine, which revolves very rapidly so as to remove all the moisture from the cotton. The product, well washed and dried, is placed in a calcium hypochlorite decolorizing bath, which bleaches the cotton to an immaculate whiteness. It is next washed thoroughly in water until free from the hypochlorite. After another drying, the cotton is carded, packed, and again autoclaved to insure perfect sterilization. As yet, only one sterilizing station has been equipped. It is situated at Montferrand, in the province near the Swiss border. About 20,000 kg. are treated daily. The soiled cotton is received from the central expediting hospital. The treated cotton is resold to the state at 1 franc 50 centimes (30 cents) per kilogram. In view of the fact that the price paid for cotton from America is 3 francs (60 cents) a kilogram or more, the saving to France amounts to more than 5,000,000 francs ($1,000,000) a year. Therefore it is contemplated to install sterilizing stations at Lyons, Mans, in the North, and in the Pyrenees.

Medical Instruction at the Front

In accord with the military authorities, M. Justin Godart, undersecretary of state for the military medical department, has organized, in the principal hospital centers in the army zones, courses for students of medicine, which will enable them to continue their studies and receive credits which may be presented for recognition later. The course is divided into two cycles, the first corresponding to the first and second years of the medical course, for which students will receive from two to eight credits. The second cycle corresponds practically to the third and fourth years of the medical course, and may be taken by students possessing nine to sixteen credits. The duration of each series is six months, three months being devoted to theory, with practical work, throughout the whole course in the center of instruction. The last course really is only three months' duration. Shortly, such courses will be given in each army, at the suggestion of the commander in chief himself, who desires to keep his younger medical officers as near at hand as possible. The courses are to be concluded by an examination held by the professors of each center and the civilian professors delegated by the various faculties. Failure postpones further work for six months, when the candidate is obliged to enter on a new course of study. The passing of the examination entitles the candidate to a diploma, which, at the close of hostilities, will be accepted as representing a certain number of credits, which entitle the candidate to cumulative credits.

Professional Training for Young Men with the Colors

The minister of public instruction has been impressed by the great danger to which the liberal professions are now exposed owing to the students and potential students being with the colors. It is to the best interests of the country that the professions be kept up under the most favorable conditions. Therefore, the minister has addressed a circular to the universities which authorizes them to register in the faculties and schools: (1) students who, following a war wound or disease contracted at the front, have been classified in the auxiliary service, and maintained in that position after thorough reexamination; (2) the reserve officers, serving with the fighting troops, who have been released from service, because of wounds or disease contracted at the front, and who are disqualified for further service; (3) the younger medical officers and pharmacists discharged for wounds or disease contracted at the front. These students will be permitted to register until December 1. When, by reason of their residence or of their service, it will be impossible for them to follow the regular course of study, they can ask for cumulative credits under the regular conditions. Thanks to this measure, they will be at liberty to resume their work as soon as their present situation will permit. The minister believes that this course of action is justified by the exceptional services they have rendered to the country, and that it is independent of the reparative measures that will be taken at the close of hostilities, and which will reestablish all possible equality between the young men who have pursued their normal course of study, and those who by the performance of their military duty have been temporarily diverted from their professional training.

Marriages

Lieut. Charles Snowden Pancoast, M. C., Pa. N. G., Philadelphia, to Miss Minnie Loretta Percell of New York City, in Philadelphia, November 28.

Lieut. Granville Inman Walker, M. R. C., U. S. Army, Savannah, Tenn., to Miss Katherine Welton of St. Paul, Ark., at Memphis, Tenn., December 2.

Lieut. John Christian Knapp, M. R. C., U. S. Army, to Miss Elizabeth Karsch, both of Philmont, N. Y., in New York City, November 12.

George Alvin Hughes, M.D., Cassopolis, Mich., to Mrs. Lenora Dennis of Edwardsburg, Mich., at Warsaw, Ind., November 29.

Jeremiah Alexander Klotz, M.D., Punxsutawney, Pa., to Miss Isabel Heimbach of Allentown, Pa., at Topton, Pa., November 22.

Asst. Surg. George Otis Cummings, U. S. Navy, Portland, Me., to Miss Sybil M. Kemp of Kingston, N. H., in Portland, November 25.

Harvey Alexander Price, M.D., Coquimbo, Chile, to Miss Marion Lenker of Mount Carmel, Pa., at Spring City, Pa., May 30.

Lieut. Webb William Weeks, M. R. C., U. S. Army, New York City, to Miss Ruth Thayer of Oklahoma City, December 2.

Robert Val Hoffman, M.D., Detroit, to Miss Eleanor Robbins Presstman of Baltimore, November 22.

Charles P. White, M.D., Wilmington, Del., to Miss Elizabeath B. Lobb of Philadelphia, November 28.

Neil Herbert Bailey, M.D., to Miss Florence Gertrude Long, both of Hartford, Conn., November 29.

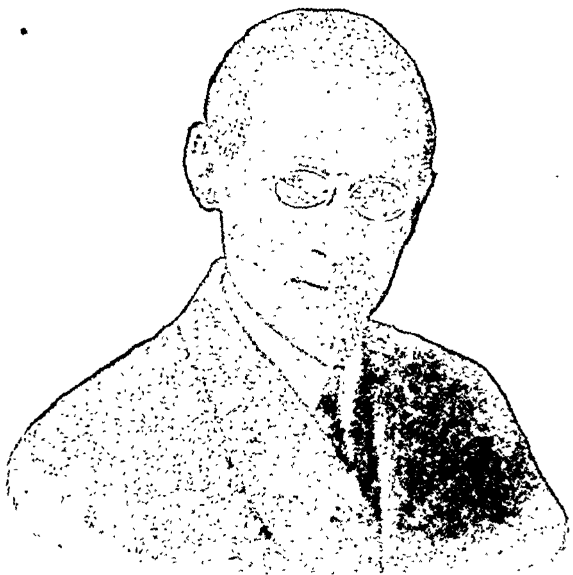
Deaths

Brig.-Gen. Bernard John Dowling Irwin, M. C., U. S. Army (retired); one of the most distinguished representatives of the Medical Department of the Army; aged 87; died at his country home, at Coburg, Ont., December 15. General Irwin was born in Ireland in 1830. He began the study of medicine in the Castleton (Vt.) Medical College in 1850, and later entered the New York Medical College from which he was graduated in 1852. After service as acting assistant surgeon, U. S. Army, for several months, he entered the Army as assistant surgeon, with the rank of lieutenant, and advanced through grades to Colonel and Assistant Surgeon-General, Aug. 28, 1890; was retired by operation of law, June 28, 1894, on attaining the age of 64, and was advanced to Brigadier-General (retired) by the act of April 23, 1904.

His service in the Army included numerous expeditions against the Indians, and he was awarded the Medal of Honor by Congress for "distinguished gallantry in action, Feb. 13-14, 1861." He was made medical director of the Army of Kentucky in 1862, and was captured in the battle of Richmond, Ky. After the close of the Civil War he served as post surgeon at a number of posts, chiefly in the West, and was attending surgeon, headquarters, Military Division of the Missouri, Chicago, from 1880 to 1882. He was in charge of the Army medical purveying depots in New York City and San Francisco until his promotion to colonel in 1890.

General Irwin devised the first field tent hospital for treatment of the wounded on the battlefield, at the time of the battle of Shiloh; its value was immediately recognized and it was promptly introduced into the military service, as the type of the most modern field hospital, and has since been adopted by the armies of all civilized nations.

Edward Augustus Ayers, M.D., Branchville, N. J.; New York University, New York City, 1880; aged 61; a Fellow of the New York Academy of Medicine, and a member of the Medical Society of the State of New York; emeritus professor of obstetrics in the New York Polyclinic; formerly a member of the New Jersey State Board of Health; founder and first president of the Mothers and Babies Hospital of New York; well known as a lecturer on scientific subjects; who won the Carpenter prize of the New York Academy of Medicine on "The Mosquito as a Sanitary Problem"; died in the Franklin (N. J.) Hospital, December 3, from pleuropneumonia.



Died in the Service

Capt. Augustin de Y. Green, M. R. C., U. S. Army, 1875-1917

(See The Journal, last week, p. 2059)

Ramon Guiteras, M.D., New York City; Harvard Medical School, 1883; aged 57; a Fellow of the American Medical Association; well known as a urologist; a member of the American Association of Genito-Urinary Surgeons, and American Urological Association; consulting surgeon to the French Hospital; visiting surgeon to the City and Columbus Hospital; professor of venereal and genito-urinary surgery in the New York Post-Graduate Medical School; well known internationally as a surgeon and big game hunter; died in the French Hospital, New York City, December 13, from meningitis.

William Allen Baker, M.D., Coloma, Mich.; Rush Medical College, 1882; a veteran of the Civil War; representative in the state legislature in 1887 and 1889; town supervisor; for several years justice of the peace, and for a number of terms president of the village of Coloma; promoter and builder of the railway from Coloma to Paw Paw Lake; builder and operator of the Coloma water works; died at his home, December 3.

George H. F. House, M.D., Indianapolis; Medical College of Indianapolis, 1879; aged 69; formerly a Fellow of the American Medical Association; a member of the Indiana State Medical Association; once vice president of the Marion County Medical Society; for one term president of the Indianapolis City Board of Health and Charities; died at the home of his daughter in Clayton, Ind., December 2, from cerebral hemorrhage.

Surg. Richard Bland Williams, Lieutenant Commander, U. S. Navy, Norfolk, Va.; University of Virginia, Charlottesville, 1898; aged 42; a Fellow of the American Medical Association; chief surgeon of the U. S. S. *Florida;* who entered the Navy, Nov. 17, 1900, as lieutenant, junior grade; while despondent on account of fear of losing his eyesight, is reported to have committed suicide in a hotel in Norfolk, December 5.

Edmund W. Meisenhelder, M.D., York, Pa.; Jefferson Medical College, 1868; aged 64; a Fellow of the American Medical Association, and a member of the staff of the York Hospital; a veteran of the Civil War; died suddenly from heart disease, while making a professional call, December 1. Tributes were paid to the memory of Dr. Meisenhelder at a meeting of the York County Medical Society, December 1.

Morris Norton Bemus, M.D., Jamestown, N. Y.; College of Physicians and Surgeons in the City of New York, 1889; aged 55; a Fellow of the American Medical Association, and of the New York Academy of Medicine; once president of the Medical Society of the State of New York, and of the Jamestown Medical Society; died at his home, December 9, from disease of the liver.

Mary Elizabeth Baldwin, M.D., Newport, R. I.; Women's Medical College of the New York Infirmary for Women and Children, 1874; aged 70; a Fellow of the American Medical Association; for twenty-five years secretary of the Newport Medical Society; died in a hospital in Brooklyn, from general toxemia following a nervous breakdown, November 21.

Edward Manning Brown, M.D., Springfield, Mass.; College of Physicians and Surgeons in the City of New York, 1898; aged 45; a member of the Massachusetts Medical Society and a specialist in dermatology and genito-urinary diseases; died in the Springfield Hospital, November 22, from meningitis consequent on an osteomyelitis of the skull.

Surg. Henry Albert Dunn, Lieutenant Commander, U. S. Navy, Philadelphia; George Washington University, Washington, D. C., 1897; aged 43; a Fellow of the American Medical Association; who was appointed an assistant surgeon and ensign in the Navy, June 7, 1900; died in a hotel in New York City, December 13, from heart disease.

Alice Byran Condict, M.D., Orange, N. J.; Chicago Homeopathic Medical College, 1883; Tufts College Medical School, Boston, 1906; aged 73; a Fellow of the American Medical Association; for more than a quarter of a century a medical missionary of the Presbyterian Board in India; died at her home, December 10.

John H. Hoxsey, M.D., Spokane, Wash.; American Medical College, St. Louis, 1885; aged 58; a member of the Washington State Medical Association; at one time physician to the Spokane County Poor Farm, and a member of the State Board of Medical Examiners; died at his home, November 29, from nephritis.

James Spencer Howard, M.D., Oswego, N. Y.; New York University, New York City, 1879; aged 80; for ten years surgeon to the Oswego City Hospital, and Oswego Orphan Asylum; a member of the board of health from 1908 to 1912; for several years jail physician; died in the Oswego Hospital, December 3.

Israel Cone Jones, M.D., New York City; Miami Medical College, Cincinnati, 1874; aged 67; a Fellow of the American Medical Association, and New York Academy of Medicine; since 1876 medical superintendent of the Home for Incurables, New York City; died in that institution, December 6.

Samuel Marcus Moore, M.D., Evanston, Ill.; Chicago Homeopathic Medical College, 1895; aged 47; a Fellow of the American Medical Association; from 1903 to 1914, chief surgeon of the Illinois Steel Company; died in the Greenwood Inn, Evanston, December 12, from pneumonia.

James E. Shannon, M.D., Sharon, Tenn.; University of Louisville, Ky., 1889; aged 52; formerly a Fellow of the

American Medical Association; a member of the Tennessee State Medical Association; died in St. Thomas Hospital, Martin, Tenn., December 1, from septicemia.

John Jay Sullivan, M.D., Passaic, N. J.; Albany (N. Y.) Medical College, 1890; aged 56; a member of the Medical Society of New Jersey; a specialist on internal medicine; died in Roosevelt Hospital, New York City, November 30, five days after an operation for gastric ulcer.

Hiram Beauregard Stout, M.D., Parkersburg, W. Va.; Medical College of Ohio, Cincinnati, 1899; aged 54; formerly a Fellow of the American Medical Association; a member of the West Virginia State Medical Association; died at his home, November 19, from arteriosclerosis.

Frank David Rieman, M.D., Paterson, N. J.; University and Bellevue Hospital Medical College, 1915; aged 33; a member of the visiting staff of the Isolation Hospital, and of the local board of school hygiene; died in St. Joseph's Hospital, Paterson, December 1, from pneumonia.

Herman F. W. Baltzer, M.D., St. Louis; University of Würzburg, Germany, 1875; aged 66; formerly a Fellow of the American Medical Association; a member of the Missouri State Medical Association; died in the Deaconess Hospital, St. Louis, October 17, from pneumonia.

John E. Bromwell, M.D., Mount Airy, Md.; University of Maryland, Baltimore, 1867; aged 77; formerly a Fellow of the American Medical Association; a member of the Medical and Chirurgical Faculty of Maryland; died at his home, November 9, from arteriosclerosis.

Daniel P. Gerberich, M.D., Lebanon, Pa.; Hahnemann Medical College, Philadelphia, 1881; aged 62; state senator from Lebanon County for two terms, and once president pro tem of the state senate; died at his home, November 29, from the effects of a fracture of the hip.

Daniel B. Summers, M.D., Shelby, Ohio; Pulte Medical College, Cincinnati, 1888; aged 54; a member of the Ohio State Medical Association; died at his home, November 30, from the effects of a gunshot wound, self-inflicted, it is believed, with suicidal intent.

William Merrick Semans, M.D., Delaware, Ohio; Miami Medical College, Cincinnati, 1887; aged 55; formerly a Fellow of the American Medical Association; a member of the Ohio State Medical Association; died at his home, December 5, from arteriosclerosis.

Sylvanus Chase Curran, M.D., Yonkers, N. Y.; Albany (N. Y.) Medical College, 1885; aged 71; for ten years captain of the Twenty-Third Separate Company, N. G., N. Y.; died in the home of his daughter in Yonkers, November 21, from cerebral hemorrhage.

William H. Wills, M.D., Milford Center, Ohio; Starling Medical College, Columbus, Ohio, 1879; aged 57; a member of the Ohio State Medical Association; died at his home, November 27, from injuries received in an automobile accident the day before.

Denis W. Barry, M.D., San Pedro de Madoris, Dominican Republic; Yale University, New Haven, 1884; aged 55; formerly a practitioner of Brooklyn and of Pretoria, South Africa; died in the Skene Sanitarium, Brooklyn, December 6, from pneumonia.

Sallie Justina Ermentrout, M.D., Eldridge, Calif.; Women's Medical College of Pennsylvania, Philadelphia, 1891; aged 60; a Fellow of the American Medical Association; a member of the staff of the Eldridge State Hospital; died at her home, November 21.

Adolphus Henry Carter, M.D., Wiggins, Colo.; Northwestern Medical College, St. Joseph, Mo., 1892; aged 67; formerly a Fellow of the American Medical Association; for many years a practitioner of Salt Lake City; died recently at his home.

William Alder Smith, M.D., Galena, Ill.; Northwestern University Medical School, Chicago, 1897; aged 45; a member of the Illinois State Medical Society; died at Council Hill, Ill., November 17, from asthma associated with heart disease.

Mark W. Bynum, M.D., Brownwood, Texas; University of Pennsylvania, Philadelphia, 1857; aged 82; once physician of Brown County, and president of the Brownwood District Association; a Confederate veteran; died at his home, November 28.

Jackson Walker, M.D., Bethany, Mo.; University of Michigan, Ann Arbor, 1867; aged 81; formerly a member of the Missouri State Medical Association; a veteran of the Civil War; died at his home, November 18, from cerebral hemorrhage.

George Abbott Campbell, M.D., Manchester, N. H.; Boston University School of Medicine, 1881; aged 60; for the last twenty years a florist and proprietor of the Ray Brook Gardens; died in a hospital in Manchaster, about December 2.

Oliver A. Collins, M.D., Mohawk, Ind.; Medical College of Indiana, Indianapolis, 1886; aged 54; formerly a Fellow of the American Medical Association; a member of the Indiana State Medical Association; died at his home, December 30.

George Leiter Greenawalt, M.D., Fort Wayne, Ind.; Bellevue Hospital Medical College, 1880; aged 66; a Fellow of the American Medical Association, and a widely knowly surgeon; died at his home, December 6, from cerebral hemorrhage.

Isaac B. Malcolm, M.D., Lowell, Mich.; American University of Pennsylvania, Eclectic, Philadelphia, 1867; aged 72; one of the earliest practitioners of Kent County; died suddenly on the street, November 21, from heart disease.

Thomas Jefferson Powell, M.D., Childersburg, Ala.; University of Maryland, Baltimore, 1866; aged 76; formerly a member of the Medical Association of the State of Alabama; died at his home, November 23, from angina pectoris.

James Walsh Southworth, M.D., Glasgow, Mo.; New York University, New York City, 1862; aged 79; assistant surgeon of the Eighth New Hampshire Volunteer Infantry, during the Civil War; died at his home, about November 21.

Henry L. Porter, M.D., Seneca, Mo.; Homeopathic Medical College of Missouri, St. Louis, 1880; aged 68; a Fellow of the American Medical Association; died in a hospital in St. Louis, November 15, after a surgical operation.

John M. Woodburn, M.D., Boise, Idaho; Jefferson Medical College, 1881; aged 58; formerly a member of the Idaho State Medical Association; died in a hospital in Boise, November 28, from acute dilatation of the heart.

William Gibson McClumphy, M.D., Moundsville, W. Va.; Starling Medical College, Columbus, Ohio, 1882; aged 67; a member of the West Virginia State Medical Association; died at his home, November 26, from malaria.

Clarence Morgan Kurtz, M.D., Reading, Pa.; Jefferson Medical College, 1886; aged 56; a member of the Medical Society of the State of Pennsylvania; died suddenly at his country home, Old Ferry, Pa., November 25.

Emmett Burr Daley, M.D., Bennington, Vt.; New York University New York, 1879; aged 62; a member of the Vermont State Medical Society; died in the Samaritan Hospital, Troy, N. Y., October 10, from acute nephritis.

Harry Alta Andrews, M.D., San Francisco; Cooper Medical College, San Francisco, 1891; aged 48; formerly a member of the Medical Society of the State of California; died at his home, August 22, from cerebral embolism.

Lafayette D. Fuller, M.D., Rockville, Conn.; Eclectic Medical College of Pennsylvania, Philadelphia, 1867; aged 73; a medical cadet during the Civil War; died in his apartment, December 6, from cerebral embolism.

Harry Hallock Lente, M.D., Oldtown, Me.; Bowdoin Medical School, Brunswick and Portland, Me., 1912; aged 31; a member of the Maine Medical Association; died at his home, about November 3, from meningitis.

William Frederic Boes, M.D., Brooklyn; Long Island College Hospital, Brooklyn, 1892; aged 64; a member of the Medical Society of the State of New York; died at his home, November 27, from arteriosclerosis.

Robert Eugene Cato, M.D., Americus, Ga.; Jefferson Medical College, 1886; aged 57; a Fellow of the American Medical Association; died at his home, in Reese Park, Americus, November 26, from heart disease.

Richard Leonard Eldredge, M.D., Bonfield, Ill.; College of Physicians and Surgeons, Chicago, 1903; aged 51; a Fellow of the American Medical Association; died in Minooka, Ill., November 29, from pneumonia.

Elias B. Mesirow, M.D., Chicago; College of Physicians and Surgeons, Chicago, 1894; aged 56; formerly a Fellow of the American Medical Association; died at his home, December 10, from lobar pneumonia.

Gilmore Robert Stevenson, Hubbard, Ohio (license, Ohio, years of practice, 1896); aged 79; for fifty-one years a practitioner; a veteran of the Civil War; died in the Youngstown (Ohio) Hospital, December 2.

Margaret Enort Colby, M.D., Berkeley, Calif.; Northwestern University Woman's Medical School, Chicago, 1884;

aged 62; formerly a practitioner of Clear Lake, Iowa; died at her home, December 10.

David Cleveland Gordon, M.D., Washington, D. C.; Jefferson Medical College, 1856; aged 81; a veteran of the Civil War; a clergyman of the Protestant Episcopal Church; died at his home, December 1.

David Ashby Kincaid, M.D., South Portland, Me.; Bowdoin Medical School, Brunswick and Portland, Me., 1878; aged 63; formerly a member of the Maine Medical Association; died at his home, November 29.

Aloysius Kesseler, M.D., New York City; New York University, New York City, 1877; aged 74; formerly a member of the Medical Society of the State of New York; died at his home, November 30.

James A. Phillips, M.D., Morristown, N. Y.; Albany (N. Y.) Medical College, 1865; aged 80; for forty-eight years a practitioner of Morristown; died at the home of his son in Syracuse, November 28.

Henry Chorley Watt, M.D., Colorado Springs, Colo.; licentiate of the Apothecaries' Society of London, 1875; aged 45; a member of the Colorado State Medical Society; died at his home, December 1.

Nathaniel Babcock Darling, M.D., Brooklyn; College of Physicians and Surgeons in the City of New York, 1873; aged 83; also a pharmacist; died at his home, November 28, from arteriosclerosis.

Franklin Clark Terrill, M.D., Big Rapids, Mich.; University of Michigan, Ann Arbor, 1879; aged 68; a member of the Michigan State Medical Society; died at his home, December 4, from carcinoma.

John Francis McCooey, M.D., Woonsocket, R. I.; College of Physicians and Surgeons, Baltimore, 1903; aged 37; died in St. Vincent's Hospital, Worcester, Mass., December 1, from peritonitis.

James Louis Beyea, M.D., New York City; New York Homeopathic Medical College, 1880; aged 80; a veteran of the Civil War; died in the Flower Hospital, New York City, December 4.

Joseph de la Cruz de Varona, M.D., New York City; Bellevue Hospital Medical College, 1865; aged 74; died at the home of his brother in New York City, November 30, from influenza.

Richard West Bourne, M.D., Mexico, Mo.; Jefferson Medical College, 1848; aged 97; the first mayor of Mexico, elected in 1856; died at the home of his daughter in Mexico, November 23.

Charles James Allen, M.D., Sheffield, Iowa; Rush Medical College, 1887; aged 61; died at his home, August 31, from tuberculosis.

Quintus L. Adams, M.D., Philadelphia; Jefferson Medical College, 1888; aged 51; died at his home, November 27, from pneumonia.

Henry A. Crawshaw, M.D., Bush, Ill.; St. Louis College of Physicians and Surgeons, 1895; aged 47; was instantly killed in an automobile accident at Carbondale, Ill., November 7.

Isaac Riley Bucher, M.D., Lebanon, Pa.; Pennsylvania Medical College, Philadelphia, 1857; aged 85; died at the home of his son in Lebanon, November 23.

Albert Charles Nussle, M.D., Chippewa Falls, Wis.; University of Illinois, Chicago, 1908; aged 33; was accidentally drowned, October 14.

Thomas J. S. Kimbrough, M.D., Weatherford, Texas; University of Nashville, Tenn., 1870; aged 74; died at his home, September 28, from nephritis.

Henry D. Jones, M.D., Grand Marais, Minn.; Eclectic Medical College of the City of New York, 1878; aged 82; died in East Chatham, N. Y., August 21, from senile debility.

A. T. Hagemeyer, M.D., Youngstown, Ohio; Medical College of Ohio, Cincinnati, 1886; aged 58; was found dead in bed, November 30.

J. Abraham Wilson, M.D., Billings, Mo.; University of Tennessee, Nashville, 1885; aged 82; died at his home, October 17, from arteriosclerosis.

A. W. H. Wullschleger, M.D., Reno, Nev.; University of Zurich, Switzerland, 1902; aged 38; died at his home, October 11, from edema of the brain.

R. H. White, Cabot, Ark. (license, Arkansas, 1903); aged 57; a practitioner since 1893; died in Jacksonville, Ark., in September, from tuberculosis.

Davis Boswell, M.D., Beatrice, Neb.; Rush Medical College, 1888; aged about 70; died in Birmingham, Ala., November 24.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

TIMES-PICAYUNE THROWS OUT MEDICAL FRAUDS

Accepts Only Medical Advertisements That Have Been Investigated and Passed on by State Board of Health

About four years ago The Journal commented editorially on the rules which the New Orleans *Item* then put into effect governing the acceptance of medical advertising. These rules, while not binding the *Item* to reject all "patent medicine" advertising, did call for the rejection of such as was plainly fraudulent or was, after rigid scrutiny, open to suspicion. As the managing editor of the *Item* wrote at the time: "Practically the whole business will go out on October 1. I am frank to say that I did not know how bad it was until I had it collected and began to look at it in a critical way." The *Item* was fortunate in having connected with its staff a physician who aided in drawing up its rules and, more important yet, in interpreting and applying these rules.

Within the last month or two another New Orleans paper —the *Times-Picayune*—has made a decision with reference to the acceptance of medical advertisements that is, if anything, more far reaching than that made by the *Item*. The *Times-Picayune* is going to follow the standards for medical advertising set by the National Vigilance Committee of the Associated Advertising Clubs of the World. These standards are practically identical with the recommendations in the report issued about two years ago by the Commission on Proprietary Medicines that was appointed by the American Pharmaceutical Association. The *Times-Picayune* explains how it is going to be in a position to follow these standards:

> "In order that these rules might be fully maintained, it obtained the cooperation of Dr. Oscar Dowling, president of the Louisiana State Board of Health, to see that they were strictly lived up to, agreeing not to print any medical advertisements without first receiving the approval of the Louisiana State Board of Health. Sept. 1, 1917, the Louisiana State Board of Health undertook the work for the *Times-Picayune*.
>
> "This set another precedent in leadership for the *Times-Picayune*, as it was the first newspaper in the South, and probably anywhere in the country, to take such an advanced step. Censorship by the State Board of Health means that every medical advertisement now appearing in the *Times-Picayune* has been thoroughly investigated and passed upon by the State Board of Health."

The new policy of the *Times-Picayune* has been officially endorsed in resolutions adopted both by the Southern Medical Association in recent annual convention and by the Orleans Parish Medical Society at a meeting held November 26. Nor is the New Orleans *Item* backward in extending its congratulations to its competitor contemporary. This paper, in a recent discussion of "patent medicine" frauds and the nostrum evil generally, said:

> "Our competitor, the *Times-Picayune*, has recently joined the ranks of newspapers which recognize this evil. It now refuses to accept money for advertising medicines whose advertising is not approved by the Louisiana State Board of Health. The president of this board, Dr. Oscar Dowling, has taken a brave, a creditable and, we believe, a highly intelligent stand against these frauds. It is with sincere pleasure that we note the stand taken by the *Times-Picayune*. When it is borne in mind that the amount of advertising of this class runs into tens of thousands of dollars a year, it will be appreciated that our contemporary is sacrificing large revenue for correct principle."

Louisiana is one of the few states that have made any serious effort to curb the evils of quackery and "patent medicine" frauds. Its work in this direction and the growth of public opinion as reflected in the action of two of its most influential newspapers is undoubtedly due to the fact that the state has in its chief health officer an aggressive and uncompromising foe of fraud.

Correspondence

ENLARGEMENT OF LINGUAL TONSIL IN WHOOPING COUGH

To the Editor:—Last week I had called to my attention again a condition which I have noticed in whooping cough and of which, so far as I have been able to find out, there has been no mention made. For a few years back I have been examining all the patients with whooping cough that I have seen, and I find an inflammation and enlargement of the lingual tonsil in practically every case. Since April, 1914, I have examined forty-three cases and in all but one there was this same finding in connection with other throat symptoms. It has been decidedly more prevalent than any other one condition in the throat, with the possible exception of an acute pharyngitis.

Through The Journal I should like to ask other physicians to examine for inflammation of the lingual tonsil in their cases of whooping cough, because if this is a constant condition in this trouble, I believe it possible to work out a more rational treatment for this cough than we have had.

W. M. Ruckle, M.D., Grand Rapids, Wis.

"PRAYERS FOR PROFIT"

To the Editor:—An item headed "Prayers for Profit" in The Journal for June 9 has come to my attention. Its occasion is The Journal's satisfaction over the recent defeat of a proposed amendment to the laws of Ohio legalizing spiritual healing.

Permit me to correct the statement which it contains, that "it is well known" that Christian Science practitioners treat their patients "for the profit there is in it." It is not well known for it is not true, neither is there evidence on which to base the charge, nor the allied charge that the church is "evidently commercial." On the contrary, Christian Scientists are well known to their neighbors throughout the world to be an honest and conscientious body of people not given to charlatanism of any sort.

But the criticism of The Journal manifestly arises, neither from the fact that Christian Scientists are paid for their healing ministrations, nor from a supposed variation from the practice of Jesus, but from the fact that The Journal disapproves of the healing effort of Christian Science. Indeed, it evidently regards all spiritual healing as inimical. The evidence of this is supplied by the fact that the section which it was proposed to add to the Ohio Medical Practice Act, and over the defeat of which The Journal rejoices, reads as follows: "Nothing in this chapter shall be construed to apply to or interfere in any way with the practice of those who endeavor to prevent or cure disease or suffering by spiritual means or prayer."

It is evident, therefore, that while The Journal refers with approval to Jesus and his practices, it nevertheless believes in interfering with healing by spiritual means or prayer.

In these circumstances it may not be out of place to remind your readers that Jesus could not have passed the examination in materia medica which is properly required of those preparing to administer material remedies, but this fact did not prevent him from earning the title of "the Great Physician."

Avery Coonley, Chicago.

[Comment.—The item to which Mr. Avery Coonley takes exception—Mr. Coonley, it will be remembered, is the "Christian Science Committee on Publication for the State of Illinois"—was a brief editorial comment to the effect that the Christian Science Church is said to have among its followers no scientist recognized by men of science, no biblical authority recognized by biblical students, no man of standing in the world of philosophy and no physician of standing among medical men. It further commended the attitude of the state of Ohio for not granting the Eddyites who would treat the sick exemption from the educational requirements of the Medical Practice Act of that state.

Mr. Coonley's statement that "Jesus could not have passed the examination in materia medica which is properly required of those preparing to administer material remedies" might be true if Christ is conceived as a man without the powers of divinity. It is equally true that Moses could not pass the examination given by the Bar Association nor could Noah qualify as commander of an ocean liner. These limitations, however, should not be held against either Noah or Moses; neither should one criticize the public of today for insisting that their legal advisers and their ship commanders should have knowledge commensurate with twentieth century requirements.—Ed.]

A NEW CONCEPTION OF THE CAUSE OF SCARLET FEVER AND THE OTHER ACUTE EXANTHEMS

To the Editor:—In 1895, Bergé ("La pathogénie de la scarlatine," Paris) said, in regard to the cause of scarlet fever, "An imposing array of evidence points to the streptococcus in one of its virulent forms as the pathogenic agent of the disease." Time and further experimental work have served only to strengthen this belief in the minds of many investigators.

It is generally assumed that the chief portal of entry for the causative agent in scarlet fever is the upper respiratory tract, more particularly the throat and tonsils. However, the many apparently typical cases of scarlet fever developing shortly after childbirth, severe burns, wounds and surgical operations suggest the fact that the causative agent may also find extrafaucial portals of entry. For many years we have been aware of the relation between complicating streptococcus infection and childbirth, burns, wounds and surgical operations.

How is it possible for the same micro-organism to cause in some persons the typical symptoms of ordinary streptococcic puerperal septicemia, streptococcic wound infection and streptococcic sore throat, and in other persons a typical or atypical scarlet fever? What, after all, is the difference between a case of septic sore throat due to the streptococcus and a case of so-called scarlet fever? I would suggest that these various conditions are due to differences in the susceptibilities of persons to the streptococcus. Scarlet fever may possibly be described as a streptococcic anaphylaxis superimposed on a streptococcic sore throat, or on a septicemia from some other portal of entry, in a person who has previously been made sensitive or hypersusceptible to the streptococcus, either through the gastro-intestinal tract or in some other way.

This conception is based on a thorough study of both scarlet fever and anaphylaxis. I am sure that the more one studies these two conditions, the more convinced one will become that the former is nothing more than a special manifestation of the latter.

Furthermore, may we not explain the other acute exanthems on the same basis? The only differences may be in regard to the specific micro-organisms and the portals of entry concerned in sensitization and intoxication.

When the time comes in which the microscope seems to fail us in the further search for a specific causal agent, should we not attempt to correlate the various facts that we already have at our disposal, and make intelligent use of them for the explanation of certain diseases that may depend on something more than a mere primary infection with a micro-organism? Leverett Dale Bristol, M.D., Augusta, Maine.

State Commissioner of Health.

Military Medicine.—The fundamental object of the Army Medical Service in war is to provide healthy men for the fighting line, to keep these men in good physical condition, and if sick or wounded, to make them fit and ready for fighting as soon as possible.—Col. T. H. Goodwin.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

CHLOROFORM IN STERILIZATION OF CULTURES

To the Editor:—In The Journal, Nov. 10, 1917, p. 1658, appears an abstract of an article by G. Stradiotti and G. Ollino on "Autogenous Vaccines in Treatment of War Wounds," published in the *Rivista critica di clinica medica* (1917, **18**, 357) in which the statement is made that chloroform was used to sterilize the cultures. Can you give me information as to the amount of chloroform used to sterilize the vaccines?

W. E. Putz, M.D., Chicago.

Answer.—The technic is only casually mentioned, as follows: "For the sterilization of the cultures, the method selected was always the addition of chloroform in slight excess to the culture fluid, agitating at intervals during two or three hours; after this the fluid was always absolutely sterile; so much so that in the several hundred injections we made we never noted an abscess or febrile reaction of any account or evidences of local intolerance; we noted nothing but fleeting redness at the site of the injection, and the usual slight painfulness, which never lasted more than a few days."

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alabama: Montgomery, Jan. 8. Chairman, Dr. S. W. Welch, Montgomery.

Colorado: Denver, Jan. 8. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

District of Columbia: Washington, Jan. 8. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

Hawaii: Honolulu, Jan. 10-13. Sec., Dr. G. A. Batten, Box 375, Honolulu.

Indiana: Indianapolis, Jan. 8-10. Sec., Dr. W. T. Gott, 84 State House, Indianapolis.

Minnesota: St. Paul, Jan. 2-4. Sec., Dr. Thomas McDavitt, 741 Lowry Bldg., St. Paul.

National Board of Medical Examiners: New York City, Jan. 9-17. Sec., Dr. J. S. Rodman, 310 Real Estate Bldg., Broad and Chestnut Sts., Philadelphia.

New Mexico: Sante Fe, Jan. 14. Sec., Dr. R. K. McClanahan, East Las Vegas.

New York: Albany, Buffalo, New York City and Syracuse, Jan. 29-Feb. 1. Sec., Dr. W. J. Denno, Education Bldg., Albany.

North Dakota: Grand Forks, Jan. 1. Sec., Dr. G. M. Williamson, Grand Forks.

Oklahoma: Oklahoma City, Jan. 8-9. Sec., Dr. J. J. Williams, Weatherford.

Oregon: Portland, Jan. 1. Sec., Dr. Herbert S. Nichols, Portland.

Pennsylvania: Philadelphia, Jan. 8-10. Sec., Nathan C. Schaeffer, State Capitol, Harrisburg.

Rhode Island: Providence, Jan. 3. Sec., Dr. B. U. Richards, State House, Providence.

South Dakota: Pierre, Jan. 8. Sec., Dr. P. B. Jenkins, Waubay.

Utah: Salt Lake City, Jan. 7-8. Cor. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

Washington: Spokane, Jan. 1. Sec., Dr. C. N. Suttner, Baker Bldg., Walla Walla.

Wisconsin: Madison, Jan. 14. Sec., Dr. J. M. Dodd, 220 E. Second St., Ashland.

Wyoming: Laramie, Feb. 6-8. Sec., Dr. H. E. McCallum, Laramie.

Washington July Examination

Dr. C. N. Suttner, secretary of the Washington State Board of Medical Examiners, reports the written examination held at Seattle, July 3-5, 1917. The examination covered 11 subjects and included 110 questions. An average of 60 per cent. in each subject was required to pass. Of the 43 candidates examined, 40, including 5 osteopaths, passed, and 3 failed. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
College of Physicians and Surgeons, Los Angeles	(1916)	93.6
	(1917)	81.7
Hahnemann Med. College of the Pacific ..(1916) 74.5;	(1917)	83.9
Denver and Gross College of Med.	(1905)	84.6
Columbian University	(1900)	84.2
Chicago College of Medicine and Surgery (1908) 75.9;	(1916)	80.2
83.6;	(1917)	86.1
Northwestern University ....(1906) 87.9;	(1916)	88.3
Rush Medical College ....(1899) 80.4;	(1906)	92.2
University of Illinois (1916) 74.5, 80.6, 88.3.		
Physio-Medical College of Indiana	(1898)	80.3
Southwestern Homeo. Medical College and Hospital	(1909)	84.3
University of Louisville	(1917)	84.1
University of Michigan Medical School	(1917)	88.4
American Medical College	(1903)	70.1
St. Louis University	(1915)	84
Washington University	(1910)	78.9
John A. Creighton Medical College	(1916)	73.8
Columbia University	(1896)	80.9
University of Oregon (1917) 87.6, 92.2, 93.8.		
Jefferson Medical College	(1916)	86.7
Medico-Chirurgical College of Philadelphia	(1905)	68.7
University of Pennsylvania ....(1916) 88.8;	(1917)	86.2
Nippon Special Medical School	(1912)	84.5
Okayama Special Medical School	(1913)	85.5
FAILED		
Barnes Medical College	(1905)	*
Miami Medical College	(1888)	*
Jefferson Medical College of Philadelphia	(1892)	*

* No grade given.

Connecticut July Examination

Dr. Charles A. Tuttle, secretary of the Connecticut State Medical Examining Board, reports the written examination held at New Haven, July 10-11, 1917. The examination covered 7 subjects and included 70 questions. An average of 75 per cent. was required to pass. Of the 37 candidates examined, 24 passed and 13 failed. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Yale University..............(1915) 84.3;	(1917)	80.2, 81.5, 83.4, 83.7
College of Physicians and Surgeons, Baltimore	(1915	81.3
Johns Hopkins University	(1916)	79.7
University of Maryland	(1916)	80.6
Harvard University ....(1915) 84.7, 89.8;	(1917)	88.2
Tufts College Medical School	(1917)	80.4, 86.5
Dartmouth Medical School	(1914)	76.7
Albany Medical College	(1898)	75.8
Columbia University ....(1912) 83;	(1916)	78.2, 86.6
Long Island College Hospital	(1916)	75.9
Jefferson Medical College of Philadelphia	(1912)	76.1
Medico-Chirurgical College of Philadelphia	(1909)	75.4
Woman's Medical College of Pennsylvania	(1912)	75.2
University of Vermont	(1916)	83.2
University of Glasgow	(1909)	77.2
FAILED		
Maryland Medical College	(1913)	57.9
University of Maryland	(1916)	73.8
Harvard University	(1915)	73.3
Tufts College Medical School	(1917)	73.9, 74.3
University of Vermont ....(1912) 72.4; (1914) 68.2;	(1917)	72.2
University of North Carolina	(1910)	60.8
Medico-Chirurgical College of Philadelphia	(1915)	72.8
Meharry Medical College	(1913)	63.4
Medical College of Virginia	(1917)	62.5
University of Athens	(1917)	53.5

Colorado July Examination

Dr. David A. Strickler, secretary of the Colorado State Board of Medical Examiners, reports the written examination held at Denver, July 5, 1917. The examination covered 8 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 27 candidates examined, 20, including 1 osteopath, passed, and 7, including 4 osteopaths and 1 drugless healer, failed. Twenty candidates, including 2 osteopaths, were licensed through reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
University of Colorado (1917) 80, 81.1, 82.5, 82.7, 83, 83.7, 84, 84.1, 84.1, 84.5, 84.6, 86.1, 86.4, 87, 89.2, 89.7, 89.7.		
St. Louis College of Physicians and Surgeons	(1914)	75.4
North Carolina Medical College	(1917)	75.1
FAILED		
St. Louis College of Physicians and Surgeons	(1915)	70.6
University of Tennessee	(1903)	48.4

College LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Chicago College of Medicine and Surgery ...(1910)	(1914)	Illinois
Chicago Homeopathic Medical College	(1897)	Illinois
College of Physicians and Surgeons, Chicago	(1909)	Illinois
Hahnemann Medical College, Chicago (1906) Illinois;	(1910)	Iowa
Medical College of Indiana	(1902)	New York
College of Physicians and Surgeons, Keokuk	(1889)	Iowa
Keokuk Medical College, Coll. of Phys. and Surg.	(1901)	Iowa
State University of Iowa College of Medicine	(1916)	Iowa
University of Kansas	(1906)	Kansas
Baltimore Medical College	(1898)	N. Dakota
St. Louis University	(1908)	Illinois
Washington University	(1905)	Missouri
University of Oklahoma	(1911)	Oklahoma
University of Nashville	(1901)	Tennessee
Vanderbilt University	(1915)	Missouri
Marquette University	(1916)	Wisconsin

Book Notices

Report of the Physical Welfare of Mothers and Children: England and Wales. Volume 1. By E. W. Hope, M.D., D.Sc., Medical Officer of Health for the City and Port of Liverpool. Volume 2. By Janet M. Campbell, M.D., M.S., One of Senior Medical Officers, Board of Education. The Carnegie United Kingdom Trust. Paper, 1917.

"Save the babies that are born" is the central idea of this report. The object is avowedly to stimulate interest in the task of reducing the amount of illness and mortality among mothers and children of the poor. The authors consider such aspects of the problem as the incidence of infant mortality and its relation to poverty, municipal sanitation, the establishment of antenatal and postnatal centers, special aid for expectant mothers in rural districts, and the training of health officers and midwives.

It is pointed out that bad housing and poverty go hand in hand, and that the economic condition of the parent is largely responsible for congenital weakness in the child, since the struggle for existence among the poor reacts on the fetus. The importance of proper sanitation is recognized for the reason that filthy courts and alleys, bad drainage, and the absence of personal and domestic hygiene are powerful factors in the intestinal diseases of infancy. Diarrhea and enteritis are cited as common in neighborhoods in which defective sanitation and bad housing are prevalent.

Considerable attention is paid to antenatal and postnatal supervision of mothers and babies by the health authorities. The antenatal clinic reduces the number of stillbirths and miscarriages among the poor, and aids in training the prospective mother for the future care of her child. It also enables the practitioner to detect and check such ailments as varicose veins, albuminuria and ophthalmia, and in cases in which syphilis is suspected, to apply the Wassermann test with the aid of the local bacteriologic laboratory. Postnatal supervision in England and Wales includes provision for the registration of births and deaths by the authorities, and for the recording of a brief life history of the child, as well as for visits to the home at intervals until the child is of school age.

The provision of sanatoriums for expectant mothers in rural districts is not yet an accomplished fact in the United Kingdom, but the authors strongly recommend their establishment, on account of the difficulty of getting skilled medical aid to the mothers in periods of emergency. On this account, Wales and parts of England remote from London and the great towns suffer more than the latter in infant mortality and loss of maternal life. The authors also recommend the subsidizing of midwifery service in rural districts by the county councils.

The need of intelligent health authorities is emphasized because of their responsibility, not only in problems of municipal housing, but also in the exercise of authority over the practice of midwifery. The regulation and training of midwives receives the fullest attention from the authors. They report a decided decline in the death rate from puerperal septic diseases from 1900 to 1914, as a result of the passage of the Midwives Act in 1902, whereby the practice of midwifery by uncertified midwives was made practically impossible. Through the agency of the Central Midwives Board, which was established to regulate the training, examination, certification and conduct of the practice of midwives, the standard has been materially raised.

In the second volume of the report, much attention is devoted to a historical survey of English midwifery during the period from the sixteenth to the nineteenth century, inclusive. It also contains a valuable chapter on modern conditions in England and Wales, and another on present-day practice of midwifery in Austria, France, Germany, Russia and Switzerland. Attention is directed to the fact that whereas in the United States the general tendency is to eliminate the midwife because of the low grade of intelligence her type represents, the policy in European countries is to improve her status and educate her more broadly for her work. In England, as on the continent, she is recognized as a permanent institution, through whose care passes a large percentage of the births in the United Kingdom, amounting, in some urban centers, to more than 75 per cent.

The report includes many interesting charts showing the incidence of maternal and of infant mortality; tables of returns from medical health officers; model plans of health administration; model housing and playgrounds specifications, and abstracts of the Midwives Act, the Notification of Births Act and other legislative enactments affecting the welfare of mothers and children.

Notes on Galvanism and Faradism. By E. M. Magill, M.B., B.S., D.P.H. Cloth. Price, $1.50 net. Pp. 220, with 67 illustrations. New York: Paul B. Hoeber, 1916.

This is a concise statement of the facts concerning this much neglected branch of therapeutics. As stated by the author, the book is primarily intended for the use of masseuses; but the practitioner who does not have the time or desire to wade through the larger and more technical works can get a good working knowledge of the subject from this book. One of the especially pleasing features is the giving of exact and minute directions to the student for applying the different treatments.

Social Medicine, Medical Economics and Miscellany

An Irruption of Antiseptics

Under this heading, the point of view of the pharmacist is thus presented in an editorial note in the *Pharmaceutical Journal and Pharmacist* (1917, **99**, 120):

"While the pharmacist is not professionally concerned with the relative therapeutic merits of the many antiseptics which have had a vogue in the past or are now competing for supremacy, he is bound, both for professional and business reasons, to keep himself conversant with all the latest phases of antiseptic treatment, with special reference to new antiseptic compounds and preparations. Sooth to say, since the outbreak of war this has been no easy task. One result of the enormous demand for hitherto staple and standard antiseptics for the treatment of war wounds has naturally been to stimulate research for the discovery of effective substitutes, while the progressive surgeon, always on the *qui vive* for improved methods of asepsis or antiseptics, has utilized to the utmost the legitimate opportunities afforded by unprecedentedly vast and varied clinical experience to give a trial to antiseptic agents and methods for which in normal times there would have been little or no opening. It is hardly an exaggeration to say that for a year or more the medical journals have announced new antiseptics at the rate of about one a week, and the battle between the partisans of the different discoveries rages loud and long. Fortunately it is not our affair to adjudicate on the issues of the controversy, but the unfortunate pharmacist can hardly be an indifferent spectator of it, seeing that he may be expected to stock or prepare on short notice one or other of the variants of, say, Dakin's solution or the paraffin compound for the treatment of burns, or to reel off for the information of the medical inquirer all about the chemistry and transcendent potency of chloramin-T, or any of the other chemicosesquipedalianly named compounds which we are assured is destined for ever to supersede all its predecesors and contemporaries. It would ill become us to belittle any effort toward the advance of antiseptic surgery, or to deprecate the need for continuous criticism and revision of existing methods and material. We have traveled far since Lister revolutionized clinical surgery as regards the prevention and treatment of the microbic infection of living tissues. But the principles on which his method was based, while not unchallenged, remain unshaken. Such differences as do obtain refer exclusively to methods of treatment or to the superiority of one antiseptic over another. In the meantime, happily, the patient is not sacrificed to an absolutely bad as compared with a perfectly good method. At the worst, all that happens is that the inferior method may delay the cure. From the pharmacist's point of view, it would be an immense relief if it were possible for the medical profession, if not to adopt Sir Almroth Wright's simple saline plan, at least to attain to some measure of standardization and uniformity in the selection and use of antiseptics, so as to minimize the practical difficulties and vexations inherent in the present lack of system, which opens the way for the needless multiplication not only of antiseptics, but of variants in the composition and preparation of them for use."

Medicolegal

Liability of Employer for Surgical and Hospital Services After Thirty-Day Period

(In re Henderson (Ind.), 116 N. E. R. 315)

The Appellate Court of Indiana, answering an inquiry of the industrial board of the state, says, in construing Section 25 of the workmen's compensation act, that it will be seen that such section provides for the furnishing by the employer of an attending physician in two instances only, namely, during the thirty-day period from the date of the injury, when he is required to furnish such physician, and thereafter when he may at his option furnish such physician. The additional services of a surgeon and hospital are limited to said periods and conditions. There is no authority to furnish the latter services except during the period of the attendance of the physician, furnished as indicated. If during the first thirty days after the injury the employer furnishes such physician, or, without cause, fails to furnish such physician, in either event the attending physician or the industrial board may during such period require surgical and hospital services for which the employer may be properly charged. However, after the thirty-day period no obligation rests on the employer to furnish an attending physician, and in the court's judgment the board has no authority or discretionary power by which it may require such a service after the expiration of said period; and hence, unless the employer elects to furnish such attending physician, the power of the board to require surgical and hospital services and supplies ends with the expiration of the thirty-day period. But the legislature intended that, so long as the employer continues to exercise the option that the statute gives him, to furnish voluntarily the injured employee a physician, if either such physician or the industrial board should determine that any surgical or hospital services are necessary in such case, the employer should be liable therefor. Moreover, if in this case the industrial board is of the opinion that the evidence before it shows that the emergency for the amputation of the employee's foot arose before the expiration of the thirty-day period, and that such amputation should have been and could have been performed before the expiration thereof, and that the employer was responsible for the delay that prevented the amputation before the expiration of such period, the board would be authorized, under the section of the act in question, in holding such employer liable for any surgical or hospital service and supplies that were in fact furnished or might have been furnished within said period, notwithstanding the employer's written notice to the attending physician and the hospital that he would not be liable for any surgical and hospital services after the expiration of thirty days from the date of the injury, and notwithstanding such services may not have been in fact furnished until after the expiration of said period.

Proof Required of Standard of Care and Skill

(Norkett vs. Martin (Colo.), 165 Pac. R. 256)

The Supreme Court of Colorado, in affirming a judgment in favor of the defendant, a physician, says that this action was brought by a minor suing by her next friend to recover damages for alleged negligence in the diagnosis and treatment of an ailment from which she was suffering, a verdict being returned for the defendant and a judgment of dismissal being entered thereon. The only error alleged was in an instruction to the jury which read: "In considering whether the defendant, in his diagnosis, care and treatment of the plaintiff's injury or disease exercised ordinary care, you cannot set up a standard of your own, but must be guided in that regard solely by the testimony of the physicians, and if you are unable to determine from the testimony or the physicians what constituted ordinary care and skill under the circumstances of this case, there would be a failure of proof on the only standard for your guidance, and the evidence would be insufficient to warrant any verdict for the plaintiff." Counsel conceded that this instruction was a copy of one that was approved in *McGraw* v. *Kerr,* 23 Colo. App. 163, 128 Pac. 870, but insisted that a difference in facts rendered that case inapplicable. But this court cannot agree with that conclusion. The court there was considering, and discussed at some length, by what evidence a jury should be guided in determining whether or not a physician had exercised such care and skill as his employment required, and held that it was a question for experts. It also held that "if no standard was established by the testimony of physicians, then the jury had no standard." This case is clearly within the rule thus laid down. The principle on which the rule is based was announced by the court in *Jackson* v. *Burnham,* 20 Colo. at page 536, 39 Pac. 577, and is supported by abundant authority. The instruction was correct.

Treatment of Cancer of Mouth by Dentist Under Direction of Physician

(In re Carpenter's Estate (Mich.), 162 N. W. R. 963)

The Supreme Court of Michigan affirms a judgment in favor of the claimant, a dentist, who charged for treating and cleansing cancer of the mouth three times a day for seventy-seven days, at $2 per day, and from four to six times a day for sixty-four days, at $3 per day; and made three charges of $4 each for cocain and antiseptic. The court says it appeared from the record that the patient was suffering from an incurable cancer of the mouth. The record also showed beyond question that the treatments administered by the claimant were so administered from the very first under the direction of a duly qualified physician, first under one physician, and later under another. It further showed that such treatments were necessarily administered from three to six times each day, the lesion in the jaw being extremely painful, and emitting a discharge highly offensive in odor. It further appeared that in the administering of said treatments some skill was required. No question was raised in this record as to the value of the claimant's services. At the conclusion of the claimant's case, counsel for the estate made a motion for a directed verdict on the ground that the services rendered by the claimant were for the treatment of a cancer by a man not shown to be legally qualified to practice medicine in the state of Michigan; that a treatment of cancer by a dentist is a treatment in violation of the law. He said: "The only question of importance involved in this case is whether the claimant in doing what he did for the decedent was engaged in the practice of medicine contrary to the provisions of Act 237 of the Public Acts of 1899 as amended." But the court is of the opinion that the claimant was entitled to recover on either of two theories: First, that the services rendered were those of an ordinary nurse under the direction of a competent and duly qualified surgeon; and, second, that they were rendered by the claimant as a duly qualified dentist under the provisions of Act 183 of the Public Acts of 1913, Section 7 of which provides: "Any person shall be said to be practicing dentistry within the meaning of this act . . . who shall . . . treat diseases or lesions of the human teeth or jaws, . . . or who shall for a fee, salary, or other award paid or to be paid, . . . treat diseases or lesions of the human teeth or jaws." The treatments administered by the claimant would clearly fall within the definition of the practice of dentistry contained in the statute. The court is of the opinion that the claimant in rendering the services for which claim was made was not practicing medicine within the meaning of Act 237, Public Acts of 1899, nor of Act No. 368, Public Acts of 1913.

Society Proceedings

COMING MEETINGS

American Association of Anatomists, Minneapolis, Dec. 27-29.
American Physiological Society, Minneapolis, Dec. 27-29.
Porto Rico Medical Association, San Juan, Dec. 22-23.
Society of American Bacteriologists, Washington, D. C., Dec. 27-29.

SOUTHERN MEDICAL ASSOCIATION

Eleventh Annual Meeting, held at Memphis, Tenn., Nov. 12-15, 1917

(Continued from page 2067)

Tetanus Following Laparotomy for Ectopic Pregnancy; Treatment by Subarachnoid Injections of Magnesium Sulphate and Antitetanic Serum; Recovery

Dr. Dewitt B. Casler, Baltimore: Certain patients are definite tetanus carriers, and, as such, are liable to be a source of infection to themselves in any surgical operation on the bowel, or about the rectum. In any abdominal operation, especially in pelvic work, when the surgeon has to deal with inflammatory masses, indurated and adherent to the bowel wall, great care should be taken to close in this indurated area as thoroughly as possible, and so avoid the danger of tetanus developing in the injured bowel wall. In every case of postoperative tetanus, it is wise to begin at once subcutaneous injections of magnesium sulphate, and in the severe cases, subarachnoid injections. There is always a certain amount of danger from paralysis of the respiratory center, and when subarachnoid injections are given, means for artificial respiration should be at hand. Magnesium sulphate given intraspinally affords the greatest amount of comfort and relief in those cases, in which death often comes, not only from the toxemia, but also from exhaustion.

Popularizing Public Health

Drs. C. E. Terry and F. Schneider, Jr., New York: As a means of bringing to the public a realization of health truths and a knowledge of the importance of health work, the family magazine has unparalleled possibilities. The seventh baby campaign has pushed this experiment in constructive journalism a step farther. A field force of trained and experienced public health nurses has been assembled, and two traveling laboratories with experienced laboratory men have been provided. This field force is now engaged in making surveys of infant mortality in particular, and public health work in general, in communities of between 10,000 and 40,000 population. Careful inventories of local conditions are made, and reports are submitted giving findings and outlining a practical program for public health progress. The field work is conducted only on the request of local authorities, and with their cooperation. The subjects covered are infant mortality in particular, that is, the number and causes of infant deaths and existing efforts to prevent them; milk supply; water supply; sewers and sewage disposal; privies and fly-breeding; waste disposal, and organization and budget of the health department.

Distribution of Vaccines and Serums by the State

Dr. C. A. Shore, Raleigh, N. C.: Cities and many counties should have their own laboratory for diagnostic purposes and for the control of water and milk supplies. The state laboratory should serve sections not otherwise provided for, and in addition should have a much wider field of usefulness and a direct public health service in making and distributing those vaccines and serums that have been accepted as reliable curative or prophylactic agents. In our state, typhoid vaccine is given free to all registered physicians. We have been sending out annually for three years an average of 400,000 doses. We estimate that at least 100,000 citizens are immunized against typhoid fever each year. I believe in the free distribution of diphtheria antitoxin. It is only then that we can hope for its use in all cases of diphtheria.

Health Education in Rural Districts

Dr. L. A. Riser, Columbia, S. C.: Two counties in South Carolina were this year induced to appropriate money through the legislature for a campaign for better health in their rural districts. Notwithstanding the phenomenal rise in the price and scarcity of labor and material in our state, we have been able to make a fair showing, and to stir up an enthusiasm for civic betterment along the line of disease prevention that will cause a demand on the part of the rural population in these counties for a continuation of this work next year. We have largely stressed the prevention of intestinal diseases by approved methods of sanitation, but we have also devoted a part of our work to the prevention of tuberculosis, and diseases of childhood. Lectures in schools, both negro and white, have been given in practically every community. In our county and community fairs we have had health exhibits, which have taught valuable lessons in disease prevention to thousands.

Relative Value of the Public Health Nurse in the Solution of the Tuberculosis Problem

Dr. W. L. Heizer, Frankfort, Ky.: The chief advantages of starting a health campaign in a county by employing competent public health nurses are: the natural inclination of a community to spend a smaller amount of money, a false economy, to accomplish a public service; the popular appeal to the public by the ministrations to the sick; the prenatal care in selected cases, and a quick appreciation of the value of public health work by reason of its publicity, secured as the result of appeals for aid to churches, fraternal organizations, and the city and county government. When a nurse is employed by a county health and welfare league, as is the policy of our commission, or a similar organization with a large county membership, it is a logical and certain means of crystallizing an awakened public health sentiment to the formation of a permanent county, city or state health department with efficient officers and sufficient equipment and assistance to make real work permanent, constructive and effective.

Physical Status of Juvenile Delinquents

Drs. Elizabeth Bass and Maud Loeber, New Orleans: Many children who are sent to reformatories would make better men and women if even superficial attention were given to them before their commitment by a physician attached to the juvenile court, to be followed up in each instance, according to the opinion of the court, either by the child's natural or rightful guardian, or, should the court deem commitment proper, by the custodian of the municipal or state institution. Physical and clinical records should be kept of each child at the time of admission into the reformatory, and observations recorded once each month thereafter, or more frequently, should the case require it. Each reformatory attending physician should have as his assistants specialists in the various branches of medicine to treat cases needing attention in his specialty, and a resident trained nurse. The diet and mode of life in an institution should be passed on by that institution's attending physician.

DISCUSSION

Dr. Oscar Dowling, Shreveport, La.: The prison system in vogue is an insult to our intelligence and a disgrace to our civilization, and there is no feature of the whole system more in need of reform than that which pertains to the juvenile criminal. Although not complete, there are sufficient data to show the close and intimate relation of mental states to abnormal physical conditions. That defects or bodily pain are the cause of actions often mistakenly called criminal is clear. Then, logically, the cause should be discovered and the remedy applied. Every court should take cognizance of pain or mental defect as a predisposing cause of crime. No jury would convict an insane person. Institutional life at its best is not an environment which gives ideal results, and for the physically defective cannot be other than trying in the extreme. I heartily approve the recommendations contained in the paper, each one of which is important and imperative. I believe they are practical and can be put into immediate effect wherever public opinion will make the demand. I believe full publicity as to the details of juvenile court proceedings and institutional life will stimulate public sentiment to the degree that the demand will be made.

Syphilis of the Heart and Aorta

Dr. Bryce W. Fontaine, Memphis, Tenn.: The records of the Memphis General Hospital for the years 1916 and 1917, inclusive, show a total admission of 219 patients with cardiovascular disease. Disease of the cardiac valves heads the list with the occurrence of mitral insufficiency in 133 of the cases, and aortic insufficiency in twenty-four. Next in point of number were aneurysms of the aorta and the peripheral arteries, of which there were eighteen. Such a study showed in the cases of mitral disease thirty-seven, or 27.8 per cent., infected with syphilis; in the cases of aortic disease, eleven, or 45.8 per cent.; and in the cases of aneurysm, eleven, or 61.1 per cent. In every case of aortic insufficiency in a young adult, in addition to the physical and other examinations, there should be made a roentgenographic examination of the chest, for this may be the only means of differentiation from chronic aortitis or aneurysm.

(To be continued)

KENTUCKY STATE MEDICAL ASSOCIATION

Sixty-Seventh Annual Meeting, held at Louisville, Nov. 6-9, 1917

(Concluded from page 2067)

Acute Intestinal Obstruction

Dr. George A. Hendon, Louisville: Any acute illness that is characterized by abdominal pain, shock and nausea, not associated with diarrhea, is sufficient evidence of intestinal obstruction to justify laparotomy. An estimate of the degree of pain is important. Any abdominal pain that cannot be quieted by a hypodermic administration of one-fourth grain of morphin in the adult and corresponding doses in children is always indicative of an organic lesion. To this rule I have never found a single exception. Such a case will sooner or later demand surgical intervention. Nausea that persists after normal stomach contents have been evacuated is never due to local conditions in the stomach. Such nausea is due either to pyloric spasms or reversed peristalsis. To produce either pyloric spasms or reversal of the peristaltic wave, an obstruction, either physiologic or mechanical, must exist. If associated with pain, such as mentioned above, the obstruction is always mechanical. The nausea of intestinal obstruction is characterized more by its persistence than by its severity. Sometimes the efforts of vomiting are mild and devoid of violent retching, but they are constant and uncontrollable. The vomited material consists first of undigested food, then mucus and bile, and later of intestinal contents. It is utterly inexcusable to wait for fecal vomit before making a diagnosis. Shock is a conspicuous symptom and is always present. The greater the degree of vascular involvement in the obstruction, the more profound is the shock.

DISCUSSION

Dr. J. Garland Sherrill, Louisville: Patients with intestinal obstruction die not so often of peritonitis due to the original trouble as from the absorption of the contents of the bowel. If we give such a patient purgatives, he will certainly die.

Dr. A. D. Willmoth, Louisville: The conditions presented by Dr. Hendon are not due to infection but to the absorption of material within the intestine itself. The mucosa of the intestinal tract is not only a simple absorbing and secreting surface, but under certain conditions it has the power of manufacturing chemical agents that may destroy the patient's life rapidly unless some form of drainage is instituted.

Dr. D. W. Payne, Bardwell: In the last year I have had three cases of acute intestinal obstruction in which the symptoms of abdominal pain, nausea and diarrhea were conspicuous by their absence.

Latency in Tuberculosis

Dr. Josephus Martin, Cynthiana: There is often a period of latency in tuberculosis. Just in what percentage of cases and exactly how this comes about is not well established. Deaths from consumption are infrequent before the fifteenth year. The careful study of tuberculosis would indicate an attempt on the part of nature at the production of acquired immunity in this disease. This is the case in as high as 95 per cent. of children examined. Latent tuberculosis in children is often revealed by defects in development. The previously normal appearing child begins to grow thin and pale; the skin and muscles feel flabby, and the bones are inclined to soften and bend. The mind often develops precociously. Children with latent tuberculosis catch cold readily; eczema and pruritis are frequent, and there may be periods of difficulty in breathing, with or without bronchitis. Pains at different points are also instructive.

Surgical Management of Hypertrophy of the Prostate

Dr. H. H. Grant, Louisville: Early removal of the prostate in the first stage, with tumor and residual urine, is a wise step. In the second stage, when the urine has become foul, the prostate should be removed by the two-stage method as soon as the patient is in condition to bear surgery. In the first stage, when surgery is unsafe, suprapubic drainage will often make the patient comfortable. The shock of the perineal operation is far less and the subsequent convalescence much more rapid and comfortable than in the suprapubic method, but it should be reserved for the small prostate about the neck of the bladder and for those grave cases in which something must be done, in which the more trying operation is too dangerous. These patients are not to be allowed to drag along with a few antiseptics for the urine and various temporizing methods until the opportunity for security in surgery has passed.

DISCUSSION

Dr. Herbert Bronner, Louisville: A class of cases the essayist did not mention is that class with nerve lesions. We not infrequently see patients who have hypertrophy of the prostate, but in whom the prostate is not palpable by rectum. Large sounds can be passed with ease. The cystoscope will reveal a trabeculation that is characteristic of nerve lesions.

Dr. Frank Boyd, Paducah: I wish to call attention to the danger of too rapid evacuation of a bladder that has long been under tension from overdistention. The better plan is to withdraw 10 ounces of urine at a time, gradually emptying the bladder in two or three days. In that way we overcome the tendency to rapid dilatation of the bladder wall.

Early Diagnosis and Treatment of Ectopic Gestation

Dr. Charles A. Vance, Lexington: Prompt operative intervention is imperatively demanded in every instance, regardless of the stage of the gestation when the patient comes under observation. In the presence of severe abdominal pain and shock, even when the diagnosis is uncertain, celiotomy is justifiable and may be a life-saving measure. Vaginal operations are not advised under any circumstances in the treatment of ectopic gestation. The primary object to be borne in mind is the safety of the mother. It is inadvisable to delay operation, hoping that the product of conception may be finally extruded through the tubal fimbriae without hemorrhage or shock, since it is impossible to determine in what portion of the tube impregnation has occurred.

Border Line Tonsils

Dr. W. B. McClure, Lexington: No matter how much the tonsil may be hypertrophied, or how much it apparently is diseased, unless there is a history of tonsillitis or quinsy, unless there are glandular enlargements about the neck or throat, unless there are constitutional symptoms of tonsillar origin, I unqualifiedly advise against their removal.

Celiohysterectomy for Puerperal Eclampsia and Placenta Praevia

Dr. Woodson H. Taulbee, Maysville: I do not propose cesarean section in every case of eclampsia or in every case of placenta praevia, but there are definite indications which make this procedure not only justifiable but the safest to both mother and child. When immediate delivery is indicated, cesarean section is often the method of choice. Every patient with eclampsia and placenta praevia or concealed hemorrhage should be given the promptest treatment possible after the first convulsion or hemorrhage. Celiohysterectomy is done rapidly; shock is greatly lessened; the control of hemorrhage is more complete; there are no cervical tears; there is less likelihood of infection; we are not working in the dark; delivery of the placenta is immediate; there is less likelihood of postpartum hemorrhage, and less danger of injury to the bladder; a living child is more certain and, if deemed necessary, the patient may be sterilized.

Treatment of Cardiac Disease by Measures Other than Drugs

Dr. Curran Pope, Louisville: Rest is an essential feature of every method and every system of treatment of cardiac diseases. Physical rest may be obtained in many ways. In some cases rest may be obtained by simply diminishing the day's work and increasing the time of general physical rest. This form of rest is particularly valuable in ambulant cases with slight or moderate weakness of the myocardia. Psychic rest is almost as important as physical rest. As far as possible, the so-called "worries" should be removed. The vast majority of such worries are in reality irritations that can be removed readily by hospital residence. The management of the diet of these patients commences with cleanliness of the entire oral cavity. Mastication is essential, and this is best secured by having the patient take small mouthfuls of food, chewing it well. We diet our cardiac patients too much. One of the most valuable, as well as the simplest, hydrotherapeutic measures in the treatment of cardiac diseases is the precordial ice bag. The ordinary ice bag or cap may be used, and should be filled with small pieces of ice to which some ordinary coarse or rock salt has been added, in the proportion of one of salt to four of ice. Massage is a very practical and useful adjunct in the treatment of cardiac diseases and disorders. In bedridden cases, manual massage and vibration have been used successfully. The sinusoidal current is of considerable value in the treatment of cardiac diseases and disorders. It seems to be especially useful in myocardial disturbances. I employ an even, smooth, short wave without surging of any kind. It produces the most lasting impression.

NEW YORK NEUROLOGICAL SOCIETY

Regular Meeting, held Oct. 2, 1917

The President, Dr. Frederick Tilney, in the Chair

Cinematographic Records of War Neuroses

Dr. Frankwood E. Williams, Associate Medical Director of the National Committee for Mental Hygiene: Shortly after the declaration of war, the Surgeon-General created in his department a division of psychiatry to organize a neuropsychiatric service in the Army to meet the problem of war neuroses as it developed in the American forces. Dr. Pearce Bailey, chairman of the Mental Hygiene War Work Committee of the National Committee for Mental Hygiene, was given charge of the new division. The creation of this division of psychiatry represented the first attempt in any army to take into consideration the mental and nervous qualifications of recruits for military service.

The National Committee for Mental Hygiene then undertook to interest the neurologists and psychiatrists throughout the country in this work. The result was that whereas there were few medical officers in the Army at the time of the declaration of war who could be called psychiatrists or neurologists, there are now approximately 300 of these specialists commissioned in the Medical Reserve Corps. There have been, of course, many new problems before the division, but the work has divided itself largely into three parts: (1) the examination of recruits, (2) provision for the care of war neuroses in the expeditionary force, and (3) provision for the care of invalided soldiers returned to this country. Psychiatrists and neurologists are now detailed to each of the American camps, where they are examining the troops in a systematic way in order that those recruits will be eliminated who are found unfit for military service because of neuropathic or psychopathic conditions. No statistics are available at the present time, but it is estimated that from 1 to 2 per cent. are being eliminated.

In order that the cooperation of line officers might be obtained, a special report was prepared indicating those personality traits that frequently come to the attention of such officers and which are considered of possible psychiatric significance, and they are requested to refer those men to the specialists for examination.

Neuropsychopathic wards are being planned for the base hospitals at each of the sixteen cantonment camps. Three or more psychiatrists and a corps of specially trained attendants are to be detailed to each of these hospitals, which will be provided with adequate hydrotherapeutic and electrotherapeutic equipment. The plans for the expeditionary force called for thirty bed neuropsychiatric units with each base hospital and for a 500 bed special hospital for war neuroses. The latter will be staffed by nineteen medical officers, a corps of 150 nurses and male attendants, and a corps of specially trained reeducational workers. It is probable that eventually specialists from the base hospitals will be on duty at the casualty clearing stations so that a patient can be handled from these stations through the base hospital unit and, if necessary, through the special hospital for war neuroses.

War Shock, Its Occurrence and Symptoms

Dr. T. H. Ames: From observation of chronic cases of war neuroses in convalescent hospitals in different parts of eastern Canada, I believe that a classification for the differential diagnosis of every case of nervousness developing at the front might be made in the following way: (1) Constitutional inferiority group, including the high grade morons and epileptics. (2) Psychoses, such as general paresis, dementia precox and manic depressive states. (3) Concussion, that is, organic injury to the brain or spinal cord, so that on physical examination disturbances in reflexes and in the spinal fluid were demonstrable. (4) War shock, or the functional cases which had no organic signs, either wounds from bullets or shrapnel, and showed no abnormal changes in reflexes. (5) Malingering, or deliberately feigned symptoms.

A rough estimate of cases of nervousness in all forms is about 3 per cent. of all the casualties, perhaps one half being cases of war shock.

It is interesting to study the types of men who suffered from these conditions. Throughout the war it had been a matter of continuous comment that prisoners of war and wounded men did not have war shock. All nervousness ceases instantly on being wounded, and war shock never develops in a sleeping man when a shell bursts near him. Crack regiments have fewer men coming down with war shock, as do old regiments with long traditions of pride. Among officers there is relatively a smaller percentage than among privates. One of the most striking features is the relatively small number of cases among woman nurses and civilians who are often exposed to shell fire.

The immediate exciting incident provoking the attack might be either a physical or an emotional shock. Being gassed, aeroplane raids, mine explosions, or anticipated mine explosions act as exciting causes. The emotional causes are apt to produce less sudden onset of symptoms; the factors are most frequently fear or suspense. The large percentage of cases, however, have their onset some time after the shock, some of the men coming out of unconsciousness and being for several days without any symptoms at all, then developing mutism, blindness, tremors, etc. Once the symptoms appear, they are apt to assume their maximum severity within twenty-four hours. As a rule, from the time the man was taken care of the symptoms began to abate, subsiding, in the majority of cases, one by one, at irregular intervals. Some of the symptoms that disappeared did so in a few moments' time; the use of the voice came back all at once, blindness disappeared almost instantaneously, as did paralysis, though the use of limbs that had been paralyzed might be slow and gradual. The cessation of tremors, however, had never been rapid. The course of the disease might be continuous or interrupted, exacerbations being quite common. The severity of the symptoms varied in many respects. Some were extremely severe and others very mild. Those cases which were monosymptomatic were apt to be more severe than those with more than one symptom. The intensity of any symptom was in inverse proportion to its duration. The symptoms might be classified as psychical or physical. There was a third group involving the autonomic system, gastro-intestinal, cardiac, respiratory, secretory or excretory systems.

DISCUSSION

Dr. John T. MacCurdy: The prevalence of "shell shock" is not well known because no statistics have been published. Major Bailey showed that 12 per cent. of those invalided home to Canada suffered from neuroses and mental diseases, 58 per cent. of which had a diagnosis of "shell shock." The War Council of Great Britain gave Major Salmon statistics of all discharges from the British Army; one seventh of these were for mental and nervous troubles, of which the largest proportion were war neuroses.

War neuroses seem to be constant and simple in their type. In England, I visited seven or eight special hospitals for nervous cases and found that the physicians who did most for their patients and returned the most men to active duty classified their material into two groups, anxiety neuroses and the conversion hysterias. In the anxiety neuroses the symptoms were almost purely psychic, in contrast to the hysterias, where the symptoms were somatic. A further difference was found in that the anxiety cases occurred mostly among officers. In Scotland, in a 300 bed hospital for officers, they had only one example of anxiety neurosis with gait disturbance; the other 299 were cases with no somatic symptoms beyond occasional tremors of brief duration. The paraplegias, the blindness, the mutism, tics, etc., constituted the hysterias, and these occurred preponderantly among the private soldiers. Privates, as a rule, were comparatively ignorant men; they were not surprised to find a scratch on the shoulder resulting in paralysis of the arm, a sequence which an educated man would view with astonishment. This was one reason for the rarity of hysterias among officers, and corresponded to the experience in civilian practice, where functional palsies, etc., were rarely met with outside of dispensary practice. The onset of the anxiety condition was gradual and usually marked by fatigue. The hysterias, on the other hand, developed quickly. It was the anxiety neuroses that had the greater military significance. The officer who later developed an anxiety state passed through a latent period during which he felt more and more fear and struggled against it. It was impossible for a man putting forth 90 per cent. of his energy in smothering fear to encourage his men with the necessary abandon; consequently their neuroses led to the breaking up of the morale of their companies.

The treatment for the two groups is different. Hysterical symptoms are amenable to suggestion, hypnotism and reeducation, all of which efforts are successful with anxiety neuroses only to a limited degree.

The common soldier hoped to receive some wound, a "blighty" one, and when his neurosis appeared the symptoms assumed corresponding physical form; his sight went or the tics, paraplegias, etc., developed. The officer had higher ideals; he would not harbor the thought of being disabled; he did not want to get out of the war by any subterfuge, and so it came about that he developed a fear of death and fearful dreams of being killed began. When this occurred his sleep was disturbed by nightmares, and this aggravated his condition until it was only a question of time before he broke down. All these premonitory symptoms went on for some time and just how fast they developed to the point of incapacitation depended on circumstances. The soldier was waiting for some final precipitating factor which might be a purely psychic trauma or a physical accident such as concussion.

Dr. Charles L. Dana: The disorders and symptoms described under the term "war shock" are not new. The grouping of the cases and classification corresponds to the groups of neuroses and psychoneuroses seen in civil life as the result of trauma and shock. The frequency, however, of different types and the combination of symptoms are different in war shock and civil shock cases. Thus, in civil life there are very few cases of hysterical mutism, deafness, or blindness, but plenty of tremor, paralysis and skin anesthesia. The group which the term neurasthenia covers better than "anxiety neuroses" seems to have much the same characters as the traumatic neurasthenias of civil life, where there are often types of mild depressions brought out by shock; neither war nor civilian shocks are often the real cause of the obsessive psychosis. The main measures to pursue in trying to prevent or to prepare individuals against shock are the avoidance of excessive fatigue and education against fear, measures which are rather councils of perfection. The ear and the body can, however, be educated to withstand the noise and concussion of cannon firing and shell explosion, as has been shown in the artillery branch of the army service, where soldiers, ignoring ear protectors, sleep peacefully in the gun pits of even the heavy artillery.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

November, XXII, No. 3

1 Early History of Germ Cells in Armadillo, Tatusia Novemcincta. A. S. Vanneman, Galveston, Texas.—p. 341.
2 Development of Serous Glands (von Ebner's) of Vallate Papillae in Man. E. A. Baumgartner, St. Louis.—p. 365.
3 Anatomy of Seven Months' Fetus Exhibiting Bilateral Absence of Ulna Accompanied by Monodactyly (and Also Diaphragmatic Hernia). J. C. Watt, Toronto.—p. 385.
4 *Normal Shape of Mammalian Red Blood Corpuscle. L. B. Arey, Chicago.—p. 439.
5 Seasonal Changes in Interstitial Cells of Testis in Woodchuck (Marmota Monax). A. T. Rasmussen, Ithaca, N. Y.—p. 475.

4. **Shape of Mammalian Red Blood Corpuscles.**—Arey is convinced that the shape of the mammalian red blood corpuscle depends largely on the osmotic pressure of the examining medium. In solutions corresponding to calcium 0.9 per cent. sodium chlorid the erythroplastid possesses a biconcave form. In progressively less concentrated (hypotonic) solutions water is imbibed and the corpuscles swell to thin-walled cups, thick-walled cups, dimpled spheres and finally lake forming shadows. In hypertonic media crenation results. Between the limits of form induced by a 0.3 per cent. sodium chlorid solution and by mild crenation the shape of the red corpuscles is repeatedly reversible. Individual variability exists in the response of erythroplastids to diluting media; this is perhaps referable to diverse elasticities of the corpuscular membranes. Undiluted drawn blood, and blood diluted with human serum, show the red corpuscles to be biconcave disks. Human serum must be diluted about one third with water before the cup form predominates. Freezing point determinations which show that mammalian plasma is isotonic with a 0.9 per cent. saline solution (instead of 0.6 per cent.) are roughly substantiated by such dilution experiments. The study of circulating blood in nonanesthetized living mammals corroborates the normality of the disk. The results gained by the use of fixatives, although seemingly adverse to the disk view, may be satisfactorily interpreted in terms of unequal fixation; this is supported by experiment. The several lines of evidence presented by Arey seem to justify the conclusion that the biconcave disk represents the normal shape of the mammalian erythroplastid—the concavoconvex cup being merely an occasional modification.

American Journal of Physiology, Baltimore

November, XLIV, No. 4

6 *Occurrence of Citric Acid in Urine. S. Amberg and W. B. McClure, Chicago.—p. 453.
7 Reception of Mechanical Stimuli by Skin, Lateral Line Organs and Ears in Fishes, Especially in Amiurus. G. H. Parker and A. P. Van Heusen.—p. 463.
8 Reversal of Reciprocal Inhibition in Earthworm. F. P. Knowlton and A. R. Moore, Woods Hole, Mass.—p. 490.
9 *Attempts to Produce Experimental Thyroid Hyperplasia. G. E. Burget, Urbana, Ill.—p. 492.

10 Relative Physiologic Value of Spectral Lights. H. Laurens and H. D. Hooker, Jr., New Haven, Conn.—p. 504.
11 All-Or-None Principle in Graded Response of Skeletal Muscle. F. H. Pratt, Buffalo.—p. 517.
12 *Alleged Relation of Epinephrin Secretion of Suprarenals to Certain Experimental Hyperglycemias. G. N. Stewart and J. M. Rogoff, Cleveland.—p. 543.
13 *Is Death from High Temperature Due to Accumulation of Acid in Tissues? A. G. Mayer, Washington, D. C.—p. 581.
14 *Phenol Excretion of Guinea-Pigs. Maintained on Exclusive Oat Diet. W. G. Karr and H. B. Lewis, Urbana, Ill.—p. 586.
15 Formula for Rate or Nerve Conduction in Sea Water. A. G. Mayer, Washington, D. C.—p. 591.

6. **Occurrence of Citric Acid in Urine.**—With the intention of studying the fate of citric acid introduced in the organism by various routes and in various diseases, Amberg and McClure tested the applicability of the method of Kunz to the quantitative determination of citric acid in the urine and other body fluids. They found that citric acid is a normal constituent of the urine of infants, children and adults. Quite an appreciable amount of citric acid is excreted in the course of twenty-four hours, enough to play a modest rôle in the acid base economy of the organism. The amount excreted varied from 21 to 50 mg. per 100 c.c.

9. **Experimental Thyroid Hyperplasia.**—Adult rats kept under hygienic conditions and fed a high protein diet were found to develop hyperplasia of the thyroid gland. Rats kept under unhygienic conditions develop hyperplasia of the thyroid if given a standard diet of bread and milk. Unhygienic conditions plus a high protein diet bring about a higher degree of hyperplasia in the adult rat than either factor taken alone. Young, growing rats kept under hygienic conditions do not develop hyperplasia of the thyroid when given a high protein diet which will induce this condition in adult rats. Feces either from goiter patients or from goitrous dogs fail to induce any changes in the thyroid of the cat when given by stomach. The central end of the phrenic nerve when sutured to the peripheral end of the cervical sympathetic either does not form a physiologic anastomosis or, if formed, the stimuli thus carried are not efficient in increasing the output of thyroid secretion to the point of producing the pathologic changes accompanying exophthalmic goiter in man. Removal of a section of the cervical sympathetic cord produces no change in the thyroid gland in the cat, indicating that secretory fibers, if there are such fibers present, play no part in the normal mechanism of thyroid secretion.

12. **Epinephrin Secretion and Experimental Hyperglycemia.**—The relation of the epinephrin secretion of the suprarenals to experimental hyperglycemias can be investigated under much better conditions in animals whose epinephrin output has been abolished or greatly reduced by removal of one suprarenal and section of the nerves of the other, than in animals deprived of both suprarenals. For in the first case the animals, after recovery from the operation, remain indefinitely in good health, whereas after total suprarenalectomy observations on the blood sugar are complicated by the fact that they must be made: (*a*) practically on dying animals (unless survivors in species where accessory suprarenals are common are employed) and (*b*) on animals suffering from the immediate effects of a major operation and anesthetization. The hyperglycemia associated with asphyxia and ether anesthesia is obtained in cats which have undergone the suprarenal operation described, even when no detectable residual liberation of epinephrin is present. No essential difference could be made out by Stewart and Rogoff in this regard between these animals and control normal cats. Accordingly, the mobilization of sugar, of which these experimental hyperglycemias are the expression, is not mediated through the epinephrin secretion of the suprarenals. Such observations as the authors have made on the effect of fright do not support the view that so-called emotional hyperglycemia is a constant or even a common phenomenon in cats. If it exists, it does not depend on an increase in the epinephrin liberated from the suprarenals. For (*a*) no essential difference could be detected between the results of emotional disturbance on the blood sugar content in the cats whose epinephrin output had been interfered with, and in the control normal cats; (*b*) no evidence was obtained that emotional disturbance increases the output of epinephrin in normal cats.

13. **Cause of Death from High Temperature.**—Mayer's researches lead him to believe that death from high temperature may be due to the accumulation of acid (possibly H_2CO_3) in the tissues, the rate of formation of this acid being commensurate with the rate of metabolism of the tissues. Thus animals of the same class having a high rate of metabolism, as measured by oxygen consumption, are more sensitive to heat and to carbon dioxid than are those having a low rate of metabolism. Death at high temperature is not due to asphyxiation.

14. **Oat Diet and Phenol Excretion in Guinea-Pigs.**—In guinea-pigs on an oat diet no changes in the urinary elimination of phenols nor in the degree of conjugation of the phenols were observed, provided the factor of partial starvation was ruled out. This is believed to indicate that no increased bacterial action occurs in the intestine of scorbutic guinea-pigs despite the difficulty of evacuation of the feces.

American Journal of Public Health, Boston

November, VII, No. 11

16 Food Conservation and War. H. C. Hoover, Washington, D. C. —p. 922.
17 Navy and Its Health Problems. W. C. Braisted, Washington, D. C.—p. 928.
18 Health Problems of Army. W. C. Gorgas, Washington, D. C. —p. 937.
19 Preservation of Health of Soldier on Western Front. T. H. Goodwin, Washington, D. C.—p. 940.
20 Sewage Disposal Problems of Coast Summer Resort. W. E. Brown, Boston.—p. 944.
21 Hospital and Industrial Hygiene. W. Wright, Boston.—p. 949.
22 Milk Supervision and Its Control. J. A. Gamble, Washington, D. C.—p. 953.
23 Mosquito Growth in Catch Basins. J. W. M. Bunker, Boston.—p. 956.
24 New Ideas in Food Control. H. E. Barnard, Indianapolis.—p. 960.
25 Diagnosis of Syphilis from Specimens Sent to Laboratory. A. Gehrmann, Chicago.—p. 964.

American Review of Tuberculosis, Baltimore

November, I, No. 9

26 *Present Status of Induced Pneumothorax in Pulmonary Tuberculosis. W. N. Beggs, Denver.—p. 509.
27 *Deductions from Four and One-Half Years' Use of Artificial Pneumothorax in Treatment of Pulmonary Tuberculosis. C. L. Minor, Asheville, N. C.—p. 522.
28 Two Cases of Spontaneous Pneumothorax During Course of Induced Pneumothorax. M. I. Marshak and J. W. Craighead, Edgewater, Colo.—p. 540.
29 *Wassermann and Luetin Reactions in Tuberculosis. H. J. Corper, W. A. Gekler and H. C. Sweany, Chicago.—p. 544.
30 Relation of Fistula in Ano to Tubercle Infection. H. B. Stone, Baltimore.—p. 548.

26. **Present Status of Induced Pneumothorax.**—As the result of personal experience and a review of the literature Beggs would make the following summary: While the operation of induced pneumothorax per se is not a dangerous one, the practice of collapse therapy calls for special skill and judgment. Collapse therapy unquestionably restores to practical health many otherwise hopeless cases, and prolongs the lives and increases the comfort of many others. It is of positive influence in decreasing the period of incapacity. It should be used in all cases of recurrent, severe and protracted hemorrhage. It should be invoked, generally speaking, much earlier than is now the usual custom. In justice to the patient it should be considered in every case of advanced or moderately advanced, slowly progressive pulmonary tuberculosis, and in every case of actively progressive pulmonary tuberculosis in any stage, because the natural trend of all these is toward death. The constant tendency to diminution of the gas pocket by pleural contraction following exudation should be persistently combated by frequent refillings under positive pressure. Control by frequent roentgenographic and fluoroscopic examinations should be insisted on whenever at all possible.

27. **Artificial Pneumothorax in Treatment of Tuberculosis.**—In Minor's opinion the method is chiefly applicable to moderately advanced, or advanced chronic cases, with or

without acute exacerbations, but not to florid, acute cases, or to incipient ones, unless these show an acute waking up. It seems also that so far we have no definite guide as to the duration of the treatment, though after one year we should always consider the advisability of removing the gas and allowing the lung to reexpand. Minor is satisfied that many cases are kept collapsed too long. Further, it may at times be useful in cases of abscess of the lung, and in hemorrhage, if we can be sure of the lung from which the blood comes, it is one of the author's most valuable measures, granted no adhesions exist. The procedure is unquestionably very dangerous if carried out carelessly, or without the constant use of the manometer, but in careful hands the percentage of danger should be very small, and while the chief danger arises while giving the preliminary injection, air embolism and other dangerous complications can occur during the course of reinjections. Forlanini's advice that small amounts of gas be injected slowly and under low pressure should never be forgotten now in cases of hemorrhage.

29. **Wassermann and Luetin Reactions in Tuberculosis.**—Seventy-nine of a total of 170 negative Wassermann cases gave a positive luetin reaction, while only 18 out of a total of 28 positive Wassermann cases gave a positive reaction, justifing the conclusion that the luetin reaction cannot be used as a test for syphilis in a tuberculosis sanatorium to displace the Wassermann test.

Archives of Pediatrics, New York

October, XXXIV, No. 10

31 Clinical Manifestations of Poliomyelitis. E. K. Armstrong, Chicago.—p. 723.
32 Emotional Life of Child. C. P. Oberndorf, New York.—p. 747.
33 Osteogenesis Imperfecta (Osteopathyrosis, Fragilitas Ossium); Report of Two Cases. H. R. Mixsell, New York.—p. 756.
34 Significance of Certain Dental Stigmata of Congenital Syphilis. J. S. Wall, Washington, D. C.—p. 765.
35 *Case of Hemorrhagic Disease in New-Born Treated by Indirect Transfusion. J. H. M. Knox, Jr., Baltimore.—p. 771.
36 *Therapeutic Use of Blood Serum. R. G. Freeman, New York.—p. 773.
37 Intussusception, Its Early Recognition. H. Apfel, New York.—p. 781.

35. **Indirect Transfusion in Hemorrhagic Disease in New-Born.**—On the third day of life, Knox's patient nursed well at 9 a. m. and shortly afterward vomited a considerable amount of dark blood-stained fluid. There was no fever and no cough. When seen shortly afterward, the baby was found to be rather sallow, but vigorous. During examination the child passed from 3 to 5 ounces of tarry, blood-stained material, evidently a hemorrhage from the intestinal tract. There was no lesion about the anus. It was at once concluded that this was a case of melena, and transfusion from the mother was determined on. About 50 c.c. of the mother's blood was received into 60 c.c. of sodium citrate solution. With a syringe, about 15 c.c. of this was introduced in the longitudinal sinus and the rest in small quantities intramuscularly into the buttocks. From 12 noon to 3:30 a. m., when the transfusion was completed, the child passed three or four tarry stools, and was greatly blanched, pulse became thready and respiration shallow and the baby seemed about to die. With complete rest, however, the condition slowly improved through the night, and the following morning the child seemed much better. The following day the baby had one bloody discharge from the bowel, not accompanied by any change in pulse or rise in temperature. The material was darker than before and was probably part of the original hemorrhage. The child was hungry and the amount of milk was increased to 6 drams, every two hours. The following day the baby had two yellow stools with some mucus, and the color was further improved. She was given 1 ounce of milk at two-hour intervals during the night. From this time on the child made an uninterrupted recovery, and there was no further bleeding.

36. **Therapeutic Use of Blood Serum.**—A baby, 2 days old, had a movement which consisted of 1½ ounces of clotted blood. Three smaller movements of the same character had previously been passed. The child was pale and its condition critical. The father was fortunately accessible. A needle was passed into one of his veins and 6 ounces of blood removed; 15 c.c. of the blood serum was injected into the baby at 5 p. m. When the child was seen again at 9 p. m. no more blood had been passed and a second injection of 15 c.c. of blood serum was used. A movement the next day contained two small clots of blood, but it was evident from the time the first blood serum was injected that the bleeding had been entirely controlled. This baby went on to a normal development. Freeman also reports four cases in which horse serum was used to good advantage.

Arkansas Medical Society Journal, Little Rock

November, XIV, No. 6

38 Malignant Growths.. A. W. Hale, Nashville.—p. 119.
39 Intestinal Diverticula. L. Kirby, Harrison.—p. 122.
40 Croupous Pneumonia. B. H. Hawkins, Mena.—p. 124.

Boston Medical and Surgical Journal

November 22, CLXXVII, No. 21

41 Wounds of Knee Joint. B. Moynihan, Leeds, England.—p. 717.

November 29, No. 22

42 Method of Electrocardiography and Electrocardiogram in Health. H. B. Williams, New York.—p. 749.
43 Significance of Arrhythmias and Systolic Murmurs in Relation to Cardiac Efficiency. H. A. Christian, Boston.—p. 750.
44 Basis of Certain Changes in Electrocardiogram. A. E. Cohn, New York.—p. 753.
45 Acute Carditis. F. T. Fulton, Providence, R. I.—p. 756.
46 *Treatment of Pernicious Anemia—Especially by Transfusion and Splenectomy. G. R. Minot, Boston and R. I. Lee, Cambridge.—p. 761.

46. **Treatment of Pernicious Anemia by Transfusion and Splenectomy.**—Of the ninety-six cases of pernicious anemia studied by Minot and Lee, 115 observations may be used for the study of therapeutic procedures. The effect of two different procedures was observed in nineteen cases at times so remote from each other that there could be no confusion of their effects. Forty patients were treated either by no special therapy or by arsenic in some form, and represent "untreated" patients. There are suitable data for study of forty-six different patients transfused in one relapse of each case. Seventy transfusions were given, not counting the transfusions associated with or given at any time after splenectomy. Nineteen patients were splenectomized, with one operative death in a case with a red count below 1,000,000. Ten patients were treated by exposure of the spleen to the roentgen rays. There was, inside of a few weeks, definite improvement beyond a simple filling up with transfused blood in about 50 per cent. of the forty-six patients that were transfused. Very slight improvement occurred in about 13 per cent. more, so that about 63 per cent. of the transfused patients showed at least some improvement beyond that due to the volume of transfused blood; while 84 per cent. of the nineteen splenectomized patients showed definite improvement following the operation. The degree of the improvements following transfusion or splenectomy averaged greater than the improvements in the "untreated" patients. In a time proportionate to that in which the transfused and splenectomized patients showed definite or slight improvement, only about 35 to 40 per cent. of the forty untreated patients showed any improvement at all, though about 80 per cent. of any pernicious anemia patients at some time in their course show some definite improvement. There is no conclusive evidence that the duration of the improvements or clear-cut remissions are any longer in the transfused and splenectomized patients than in the untreated ones. However, there were but 7.5 per cent. of the untreated patients that showed such marked and rapid gains in the same period of time (about a month) as 30 per cent. of the splenectomized and transfused patients did (18 per cent. of the transfused and 46+ per cent. of the splenectomized). The untreated patients formed a similar number of the different types of the disease as those splenectomized and transfused, except that all four cases of the acute type occurred in the transfused group. It is to be noted that the transfused group contained more unfavorable cases than the untreated group, and that ten of the transfused patients died within a month, while but four of the untreated patients did so.

Journal of Cutaneous Diseases, Chicago

November, XXXV, No. 9

47 Teaching of Syphilis. J. A. Fordyce, New York.—p. 717.
48 Teaching of Syphilis in School and Hospital. C. M. Smith, Boston. —p. 726.
49 Teaching of Syphilis in Undergraduate Schools. W. J. Heimann, New York.—p. 723.
50 Classification of Urticarias. R. L. Sutton, Kansas City, Mo.—p. 749.
51 Late Urticaria Pigmentosa, or Urticaria Pigmentosa Beginning After Puberty. M. B. Hartzell, Philadelphia.—p. 756.

Journal of Experimental Medicine, Baltimore

December, XXVI, No. 6

52 *Petroff's Cultural Method for Isolation of Tubercle Bacilli from Sputum and Its Application to Examination of Milk. F. C. Stewart, New Haven, Conn.—p. 755.
53 Biologic Identity of Friedländer Bacillus. C. B. Coulter, New York.—p. 763.
54 *Effect of Alcohol on Reproductive Tissues. A. H. Arlitt and H. G. Wells, Chicago.—p. 769.
55 Meningitis in an Infant Due to Hitherto Undescribed Organism, Micrococcus Florens. W. C. Davison, A. S. Davison and M. K. Miller, Baltimore.—p. 779.
56 *Relation of Spleen to Blood Destruction and Regeneration and to Hemolytic Jaundice. Influence of Splenectomy and of Blood Disintegration on Production of Bile Pigment. K. Goto, Philadelphia.—p. 795.
57 Staggers in Sheep in Patagonia. F. S. Jones and J. F. Arnold, Princeton, N. J.—p. 805.
58 *Diversion of Pancreatic Juice from Duodenum into Stomach. Its Effects on Level of Gastric Acidity and on Pancreas. E. G. Grey, Baltimore.—p. 825.
59 Abiotic Action of Ultraviolet Light. H. S. Newcomer, Philadelphia. —p. 841.
60 *Changes in Peripheral Blood Consequent on Diversion of Splenic Blood into General Circulation. W. C. Burket, Baltimore.—p. 849.
61 Identity of Toxins of Different Strains of Bacillus Welchii and Factors Influencing Their Production in Vitro. C. G. Bull and I. W. Pritchett, New York.—p. 867.

52. **Isolation of Tubercle Bacilli.**—Tubercle bacilli were isolated by Stewart by the Petroff method from 64.8 per cent. of the sputums which were found to be positive by the direct microscopic method. The organism was recovered from 69.2 per cent. of the samples of milk that were artificially infected. Of the milk obtained through the New Haven Health Department Laboratory 8.4 per cent. of the samples were found to contain tubercle bacilli, while none of the twenty-nine samples from the state laboratory gave positive cultures. All the guinea-pigs (thirteen), except one, which were used as control animals died without any visible signs of tuberculosis. Stewart concludes that Petroff's method for the isolation of tubercle bacilli from sputum may be applied successfully to the examination of milk. With slight modifications, the method should prove constant and reliable. The need of such a method for the examination of milk and milk products is apparent.

54. **Effect of Alcohol on Reproductive Tissues.**—Arlitt and Wells found that the administration of alcohol in the food of male white rats for two or more months, in daily quantities of 0.25 to 2.25 c.c., results almost constantly in the appearance of marked degenerative alterations in the testicles. These changes affect the steps of spermatogenesis in inverse order to their occurrence, so that for some time before sterility and complete aspermia result the animal is producing spermatozoa with all possible degrees of abnormality and deficiency. The possible relation of this abnormal spermatogenesis to the production of defective offspring is obvious. Individual rats show marked differences in the degree of change produced by equal amounts of alcohol. The fibrous, interstitial, and vascular elements of the testicle are not affected, except for intertubular edema compensating for tubular atrophy. These experimental observations harmonize with the necropsy findings in human alcoholics. No other tissue was found to be noticeably affected by the alcohol; especially to be marked is the absence of cirrhosis of fatty infiltration in the liver.

56. **Blood Destruction and Regeneration in Hemolytic Jaundice.**—In four animals with a bile duct ureter anastomosis and without disturbance due to obstruction or absorption, the total quantity of bile pigment output during a day under normal conditions varied from 0.0618 to 0.0678 gm. These figures are practically identical with those of Stadelmann (9, 10) but lower than those given by Hooper and Whipple (7), who find that the average bile pigment excretion amounts to about 1 mg. per pound of body weight per 6 hours. In all of Goto's experiments there is definite evidence of a decrease in bile pigment elimination after splenectomy. This is true not only of the elimination when no hemolytic agent is administered, but also when excessive blood destruction is caused. Under the latter circumstances the amount of bile pigment is greatly increased, but never reaches the high level of blood destruction before splenectomy. These observations appear to show conclusively that the absence of the spleen influences the formation of bile pigment. To what extent the influence is mechanical (that is, change in the course of the blood to the liver) and to what extent due to anemia, cannot be stated at present.

58. **Diversion of Pancreatic Juice.**—From the results of Grey's experiments it appears that the presence of a considerable amount of pancreatic juice in the stomach throughout the period of digestion leads only to a moderate decrease in the acidity level of the ingesta in the later stages of digestion. Earlier in the process there is no constant alteration of the acidity level in either direction. The findings, then, serve not only to corroborate the views of Boldyreff, but also to demonstrate the remarkable compensatory activity of the gastric glands under conditions which entail an unusual quantity of alkali in the stomach. In addition the work has shown that when the larger pancreatic duct is properly transplanted into the wall of the stomach, it may remain patent for months. In animals in which this operative procedure has been carried out, the pancreas has been found to undergo no inflammatory or other degenerative changes. This finding is regarded as evidence against the postulation of Hlava that gastric juice is probably responsible for the occurrence of certain cases of acute hemorrhagic pancreatitis.

60. **Diversion of Splenic Blood.**—The splenoreal venous anastomosis made by Burket offered a simple and satisfactory method of diverting the splenic blood into the general circulation because it was easy and produced no gross abnormal intra-abdominal changes, and the vessels normally lay parallel to each other and were readily approximated without tension. The operation was successful in every case. The animals did very well after operation and were healthy and active. No noteworthy histologic changes were observed in any of the organs or tissues. There was no essential change in bile production that could be detected by jaundice. The urine and stools showed no changes.

Journal of Laboratory and Clinical Medicine, St. Louis

November, III, No. 2

62 Investigation of Chemical Composition and Biologic Availability of Peptone, L. Davis, Detroit.—p. 75.
63 Tentative Explanation of Mechanism of Hemolysis Associated with Loss of Water and Bearing of Phenomenon on Certain Biologic Problems. C. C. Guthrie, Pittsburgh.—p. 87.
64 *Studies on Cholesterol. Influence of Bile Derivatives in Bloor's Cholesterol Determination. G. Luden, Rochester, Minn.—p. 93.
65 Value of Calcium Sulphid in Treatment of Poisoning by Mercuric Chlorid. C. C. Haskell and R. H. Courtney, Richmond, Va.—p. 110.
66 *Etiology of Arteriosclerosis. L. M. Warfield, Milwaukee.—p. 115.
67 Modified Wassermann Technic Based on Rapid Fixation of Complement Present in Human Serum. C. J. Bartlett and A. L. O'Shansky, New Haven, Conn.—p. 118.
68 Measurement of Spinal Puncture Needle. A. Levinson, Chicago. —p. 127.
69 Device for Accurate Pipetting. L. R. Thompson, Napa, Calif.—p. 130.
70 An Inexpensive Colorimeter. J. W. Weir, Oklahoma City.—p. 132.

64. **Studies on Cholesterol.**—In 748 parallel blood cholesterol determinations made by Luden according to Bloor's original method, with sodium ethylate, and Bloor's modification of his method, without sodium ethylate, a constant difference could be observed in the cholesterol values obtained by both methods, lower values being registered by the tests with sodium than by those without. This difference was found to be most pronounced in samples of icteric blood obtained from cases of obstructive jaundice, but a constant slight

difference, ranging from 0.05 mg. to 0.07 mg. could be observed also in normal blood. Luden's observations suggest that parallel cholesterol determinations with Bloor's original method and its modification might furnish valuable information concerning the chemistry of the blood, particularly in cases of biliary disturbance without visible symptoms of icterus, as Bloor's method is extremely simple and could easily be supplemented if desired by the dialyzation method of Hoover and Blankenhorn.

66. **Etiology of Arteriosclerosis.**—Five hundred persons were examined by Warfield for the purpose of showing that the infectious diseases played an important part in the production of arteriosclerosis, but the results of this study showed that they play little or no part in the etiology of this condition

Laryngoscope, St. Louis

November, XXVII, No. 11

71 Vincent's Angina. T. Hubbard, Toledo, Ohio.—p. 789.
72 Three Cases of Stricture of Esophagus Due to Accidental Swallowing of Concentrated Lye Solutions. C. J. Imperatori, New York.—p. 796.
73 New Iodin Preparation "Iodosan." M. D. Lederman, New York.—p. 800.
74 Tonsillectomy in Tuberculous. F. L. Dennis, Colorado Springs, Colo.—p. 805.
75 Complete Unilateral Deafness Resulting from Acute Parotitis; Report of Case. G. H. Willcutt, San Francisco.—p. 811.
76 Pneumococcic Meningitis Following Acute Suppurative Otitis Media. J. Clothier, Pocatello, Idaho.—p. 813.
77 Device or Artificial Ear Drum for Use in Impaired Hearing and for Prevention of Concussion Deafness. E. Baum, Philadelphia.—p. 815.

Medical Record, New York

December 1, XCII, No. 22

78 Probing the Mind. Normal and Abnormal. J. V. Haberman, New York.—p. 927.
79 Malignancy of Biliary Apparatus. W. G. Vincent, New York.—p. 933.
80 Some of Newer Methods of Treating Wounds. F. C. E. Mattison, Pasadena, Calif.—p. 937.
81 Cesarean Section for Eclampsia in Twin Pregnancy; Saving Mother and Both Children. A. Schachner, Louisville, Ky.—p. 941.
82 Blood in Stools in Duodenal Ulcer. A. J. P. Pacini, New York.—p. 942.
83 Henoch's Purpura. M. B. Wesson, El Paso, Texas.—p. 943.

December 8, No. 23

84 Psychical Changes Observed in Pulmonary Tuberculosis and Its Relation to Insanity. S. A. Silk, Washington, D. C.—p. 969.
85 Obstetric Fads and Heresies. E. H. Grandin, New York.—p. 980.
86 Simple Method of Forming Original Mental Associations. E. Preble, New York.—p. 982.
87 Complications of Mastoiditis. J. M. Smith, New York.—p. 983.
88 Differential History Form for Enlargements of Thyroid. F. Christopher, Evanston, Ill.—p. 985.
89 Acute Diabetes Mellitus. E. O. Elmer, Hartford, Conn.—p. 987.
90 Standard for Exemption of Tuberculous Recruits from National Army. M. J. Fine, Newark, N. J.—p. 988.

Medicine and Surgery, St. Louis

November, I, No. 9

91 *Heart Block in Acute Rheumatic Pericarditis; Report of Cases. H. A. Christian, Boston.—p. 911.
92 Myocardial Degenerations and Their Treatment. A. E. Roussel, Philadelphia.—p. 921.
93 Diagnosis and Prognosis of Heart Disease. R. H. Babcock, Chicago.—p. 931.
94 Complement Fixation Test in Tuberculosis. R. B. H. Gradwohl, St. Louis.—p. 937.
95 Pulmonary Syphilis. M. F. Morris, Jr., Chelsea, Mass.—p. 949.
96 Prognosis and Treatment of Pulmonary Tuberculosis. J. Dworetzky and M. G. Milan, Otisville, N. Y.—p. 959.
97 Lesions of Chest Most Frequently Mistaken for Pulmonary Tuberculosis. M. I. Marshak, Edgewater, Colo.—p. 969.
98 *Relative Value of Five Diagnostic Procedures in Four Hundred Consecutive Cases Investigated by Group Study Method for Pulmonary Tuberculosis. R. L. Ochsner, San Francisco.—p. 975.
99 Angina Pectoris. D. Rochester, Buffalo.—p. 982.
100 Pulmonary Area, or Region of Romance. R. Abrahams, New York.—p. 993.

91. **Heart Block in Acute Rheumatic Pericarditis.**—In Christian's experience heart block has been relatively quite frequent in one type of rheumatic cases, namely, where with or shortly following acute articular disturbances the patient develops the typical physical signs of acute pericarditis. In sixteen consecutive cases of this type, heart block has been demonstrated in five and possibly may have been present in a sixth in whom irregularity of pulse was felt. Christian fears that it may have been overlooked in some of the others, though in all but two electrocardiograms were made. Still, block may have occurred on other days than those when electrocardiograms were taken and suggestive evidence of it not be found by detecting any irregularity in the pulse. After all, as the condition is transitory, it is remarkable that it was detected as often as it was in this group. The part played by digitalis in this group is not certain. In one case with block no digitalis was given; in others digitalis did not seem always closely related to the occurrence of the block. In four patients in whom block was not demonstrated digitalis was used, in one case in fairly large amount. From what Christian has seen in the use of digitalis in other cardiac cases, digitalis would not seem to be the chief cause of the heart block in this group. Probably, however, with a rheumatic lesion in the conduction system digitalis has had an added effect on it and led to block where without it block would not have occurred. In this sense digitalis may have been a contributory factor in the occurrence of block. The frequent occurrence of partial heart block in these cases of rheumatic pericarditis emphasizes further the extent of the involvement of the heart in rheumatism and justifies the caution in allowing the patient convalescing from rheumatism to exercise. In Christian's cases the block has not appeared to have influenced in any way the clinical course of the patients' disease. All but one of the patients recovered and a fatal case was one in the group not showing block.

98. **Group Study Method for Pulmonary Tuberculosis.**—Two years ago, the diagnostic section of St. Luke's Hospital, San Francisco, established a method of clinical investigation different from any system hitherto recorded. This difference lay in the extensiveness and completeness of examination as well as in the carefulness and completeness of its records. The method agreed on is as follows: Patients who are chronically ill (average, two years and a half), who have shown no tendency toward spontaneous recovery, are sent to the hospital by their own physicians for investigation. They are then examined by twelve clinicians representing the following departments: pathology, bacteriology, roentgenology, eye, ear, nose and throat, cardiovascular diseases, respiratory diseases, gastro-enterology, urologic surgery, neurology, orthopedic surgery, general surgery and general medicine. Thus each clinician examines each case, whether or not it falls symptomatically into his department. Furthermore, he makes a written report of his findings. The members of the section meet formally each day to discuss the case until all are satisfied with the conclusions. Through the correlation of each clinician's findings, cases are carefully culled and diagnosis is narrowed down to the fewest possibilities; also, in ruling out symptomatology which simulates tuberculosis, the respiratory clinician has been so greatly assisted by the findings of the other departments that he states with conviction his conclusions as found in this paper, for his findings are not that of one man but of one plus eleven others. From the data thus collected, the respiratory clinician presents the diagnostic results of 400 cases examined serially by the group, setting forth the value of the history, physical examination, tuberculin tests, laboratory and roentgen rays reports in coming to a conclusion for or against pulmonary tuberculosis.

It seems that the physical examination gives the most reliable information and for this reason more and more time is now being given to this part of the investigation, an hour often being spent in examination of the chest; the history is of next importance and should be checked carefully and repeatedly, since often at first the questions are misunderstood or their importance is not apparent; the tuberculin reactions can be relied on in only two thirds of the positive cases and in 96 per cent. of the negative cases. The roentgen ray gives no positive evidence in nearly 50 per cent. of the cases, gives less positive evidence than the tuberculin test, and is of no value except in a negative sense, until extensive pathologic changes have taken place, this occurring in most cases long after the symptomatology and physical examination are well marked. The examination of the sputum from the pathologic standpoint is positive only about once in ten times, and too often this pathologic conclusion gives the attending physician a feeling of false security that the case is negative, much valuable time for the patient thus being lost.

New York Medical Journal

December 1, CVI, No. 22

101 Surgical Treatment of Wounded Men at Advanced Units. H. M. W. Gray, Aberdeen, Scotland.—p. 1013.
102 Manual Treatment of Cervical Sympathetic. E. F. Cyriax, London. —p. 1021.
103 Case of Pontine Syndrome. M. Osnato, New York.—p. 1026.
104 Effect of Accidental Instillation of Stock Solution of Corrosive Sublimate into Conjunctival Sac; Report of Case. A. Brav, Philadelphia.—p. 1027.
105 Death in Tabes Dorsalis. M. Grossman, New York.—p. 1029.
106 Wassermann Complement Fixation Test for Syphilis. J. W. Smith, Jr., New York.—p. 1030.
107 Hyoscin and Apormorphin; Prompt Emergency Hypnotic. C. J. Douglas, Boston.—p. 1032.
108 Physical Training and Hygiene for Busy People. L. F. Fuld, New York.—p. 1032.

South Carolina Medical Association Journal, Greenville

November, XIII, No. 11

109 Value of Thorough Roentgen-Ray Examination in All Injuries; Roentgen Ray in Military Surgery. W. F. Ashmore, Anderson. —p. 725.
110 Hydrotherapeutic Hints Boiled Down for General Practitioner. W. W. Blackman, Atlanta.—p. 727.
111 Ectopic Pregnancy. J. C. Harris, Anderson.—p. 730.
112 Autoserum in Arthritis as Used by Author. W. R. Barron, Columbia.—p. 735.

Southwest Journal of Medicine and Surgery, El Reno, Okla.

November, XXV, No. 11

113 Extra Pleural Collapse of Tuberculous Lung in Hopeless Case. M. O. Shivers, Colorado Springs, Colo.—p. 272.

Texas State Journal of Medicine, Fort Worth

November, XIII, No. 7

114 Tuberculin as Diagnostic Agent. S. von Ruck, Asheville, N. C.— p. 237.
115 Home Treatment vs. Sanatorium Treatment for Tuberculosis; Observations on Climate. W. O. Wilkes, Waco.—p. 242.
116 Early Diagnosis of Pulmonary Tuberculosis by Physical Signs. I. S. Kahn, San Antonio.—p. 246.
117 Diagnosis and Prevention of Syphilitic Nerve Lesions. I. L. McGlasson, Waco.—p. 248.
118 Tonsils as Portal of Infection in Poliomyelitis. J. M. Woodson, Temple.—p. 251.
119 Is There a Paratonsillar Gland? H. B. Decherd, Dallas.—p. 253.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Surgery, Bristol

October, V, No. 18

1 Methods and Results of Transplantation of Bone in Repair of Defects Caused by Injury or Disease. E. W. H. Groves.—p. 185.
2 *Case of Diffuse Traumatic Aneurysm in Surgical Neck of Humerus. R. L. Knaggs.—p. 243.
3 Gunshot Wounds of Kidney and Ureter as Seen at Base. A. Fullerton.—p. 248.
4 Bullet Marks on Skin of Abdominal Wall; Note on Question of Heat Retained by Spent Bullet. G. H. Makins and Pinches. —p. 289.
5 *Pathology of Projectile Fracture of Bones of the Extremities. E. K. Martin and G. F. Petrie.—p. 292.
6 Case of Peptic Ulcer Opening into Transverse Colon. G. Barling. —p. 343.
7 *Case in which Markings of Nutrient Canals of Ilium were Mistaken for Fracture. A. K. Smith-Shand.—p. 346.

2. Diffuse Traumatic Aneurysm in Surgical Neck of Humerus.—In Knaggs' case a bullet had passed through the surgical neck of the left humerus. The wound of entry was behind the shoulder over the posterior fibers of the deltoid, and the bullet had passed out through the center of the upper part of the biceps. Both wounds were healthy, and apparently superficial, when the patient was admitted. About four weeks later the man had a bad night owing to a great deal of pain in the shoulder, and the next morning pulsation was first detected about an inch above the exit wound. Examination showed that the upper part of the shaft was considerably enlarged, and that this enlargement was the subject of expansile pulsation. The main artery was normal as it coursed over the internal aspect of the swelling. No bruit could be made out, and there was no thrill. The roentgenogram showed a large irregular aperture in the surgical neck, with comminution of the internal surface, the fragments being displaced as if they had been forced outward by the explosive effect of the bullet. Ten days later an enlarged gland was noticed in the supraclavicular fossa. The general swelling of the shoulder that had followed the wound had now completely subsided, and the increasing expansion of the bone showed as a definite rounded tumor about the size of a cricket ball, altering the normal contour of the limb. There was a general agreement in a diagnosis of rapidly growing endosteal sarcoma but at the operation nothing was seen that looked like tumor tissue. A mass of black clot was evacuated. This was followed by very free arterial bleeding, and the cavity was at once firmly packed. After weighing the pros and cons in the case an interscapulothoracic amputation was performed by Littlewood's method, that is, from behind. A rapid recovery followed. Knaggs says that there can be no doubt that this was an instance of a traumatic aneurysm occurring in the interior of the humerus, and that it probably ruptured and became diffused when the patient suffered for the first time since his admission with severe pain in the shoulder.

5. Projectile Fracture of Bones of Extremities.—The authors summarize their observations as follows: From the surface of a divided or fractured bone exposed to infection, bacteria may penetrate to the deeper parts. In an untreated fracture, penetration is apparently unlimited. If the dead bone on the surface of the fracture is removed early, penetration is much reduced, and may not occur at all. Penetration, particularly of anaerobes, is greatly increased by reduction of the circulation through the injured bone. Penetration is increased by obstruction to drainage, either of the bone or of the soft parts. The order of frequency and power of penetration of the bacteria found is: (1) streptococcus; (2) staphylococcus; (3) anaerobes; (4) *B. coli.* The rate of penetration is at its maximum during the first few days. In the material examined, no difference in reaction to penetration has been noted between cancellous bone and the marrow of the shaft. Bruising—an invariable accompaniment of projectile fracture—does not appear to facilitate penetration if the surface layer of débris is removed and drainage established. In a septic fissure, growth of bacteria is progressive and may lead to infection of a distant part, for example, a joint. Dissemination of infection throughout a bone takes place by penetration from its walls.

7. Normal Markings Mistaken for Fracture.—This case is of interest in demonstrating that it is possible to mistake an unusually large nutrient artery in the ilium for a fracture of that bone; further, it brings out the fact that the nutrient arteries of the ilium, whatever their point of entry, invariably converge to a common meeting point which may be considered the true primary center of ossification of that bone.

British Medical Journal, London

November 10, II, No. 2967

8 Misplaced and Missing Organs. J. B. Sutton.—p. 607.
9 *Microscopic Examination of Brains of Two Men Dead of Commotio Cerebri (Shell Shock) without Visible External Injury. F. W. Mott.—p. 612.
10 Pathologic Findings in Nerves Following War Injuries. S. M. Cone.—p. 615.
11 Three Cases of Melena Neonatorum Successfully Treated by Injection of Whole Blood or Blood Serum. R. Hutchison.—p. 617.

November 17, II, No. 2968

12 Medicine in England During the Reign of George III. A. Chaplin. —p. 637. To be continued.
13 *Relative Germicidal Efficiency of Antiseptics of Chlorin Group and Acriflavine and Other Dyes. H. D. Dakin and E. K. Dunham. —p. 641.
14 *Detection and Treatment with Emetin Bismuth Iodid of Amebic Dysentery Carriers among Cases of Irritable Heart. M. W. Jepps and J. C. Meakins.—p. 645.
15 Spontaneous Evacuation of Shrapnel Bullet in Lung by Expectoration. R. M. Leslie.—p. 648.

9. Cause of Death from Shell Shock.—This is said to be the first description that has been given which serves to explain (1) sudden death in shell shock, and (2) the clinical symptoms which persist for some time after the commotion of the brain in nonfatal cases. The brain was extremely congested, and on each side of every superficial vessel there was an ecchymosis. There were a number of minute punctiform hemorrhages at the terminations of the smallest vessels on the surface of the brain. The whole brain was soft but not markedly edematous. The cerebrospinal fluid appeared to be blood tinged. There was considerable ecchymosis on each side of the great sinuses of the skull. There was no large hemorrhage found and no small intracerebral petechiae. There was no gross lesion of the viscera, which would have been a cause of death.

13. **Germicidal Efficiency of Certain Antiseptics.**—The main facts disclosed by Dakin and Dunham's series of experiments are as follows: (*a*) The rapid and complete disinfection brought about by solutions (one volume) of members of the chlorin group of antiseptics of the strength commonly used in the treatment of wounds, when added to heavily infected blood serum muscle extract mixture (two volumes). (*b*) Under similar circumstances, solutions of acriflavine, proflavine, brilliant green and malachite green failed to sterilize in six hours mixtures which the chlorin antiseptics sterilized completely in five minutes or less. The authors believe that the statements of Browning and his colleagues as to the relative germicidal efficiency of chloramin-T and other antiseptics of the chlorin group compared with brilliant green, malachite green, and acriflavine, are incorrect, and that their mode of testing the germicidal action of the substances studied by them leads to results which are radically misleading.

14. **Detection of Amebic Dysentery Carriers.**—Emetin bismuth iodid when given in a powder generally causes nausea and vomiting. In order to overcome these conditions three preparations of the drug were tried by Jepps and Meakins. These were experimental preparations made by three different firms, and were submitted to the authors for trial. They were all in tablet or pill form, and were either mixed or coated with some material supposedly insoluble in the stomach. In all, twenty-three courses of treatment were given with these preparations. In no case was nausea or vomiting produced, but in eight cases (35 per cent.) severe diarrhea and abdominal cramps occurred. Some looseness of the bowels was observed in all cases in which the drug appeared to have any action. Different measures of success were obtained with these different preparations. With the first preparation there were eight cures out of twelve patients treated, or 66 per cent. With the second there were no cures, while with the third there was only one cured out of four patients treated, or 25 per cent. Of the three preparations, the first was the only one which gave sufficiently good results to justify its use in preference to the drug given in powder. But even the proportion of cures with this preparation is not sufficiently high to warrant its general use. The objection to the use of emetin bismuth iodid in powder, given in a cachet or capsule, has been the occurrence of nausea and vomiting. The authors have treated eleven patients with cachets, and these symptoms occurred in all of them. The drug was given with a hot drink at 9 p. m., after the patient was in bed. The time of the vomiting after the drug was taken varied in different individuals.

It is evident that the nausea and vomiting occurs most frequently after the stomach is presumably empty. These symptoms fortunately did not persist during the whole course of treatment. The toxic symptoms disappeared after a time as if a tolerance had developed. Eleven cases were treated with emetin bismuth iodid in cachets of 3 grains each. Ten cases (91 per cent.) were cured after twelve daily doses. One patient who was not cured had previously resisted three courses with the first preparation. The results obtained with the drug administered by this method are much more encouraging than those obtained with any of the other preparations. All the patients treated were suffering from symptoms of irritable heart. Any possible effects of the removal of the *E. histolytica* infection on the symptoms of this condition were carefully looked for. Of the twenty cases which were cured, eleven (55 per cent.) showed a conspicuous improvement, while nine (45 per cent.) showed little or none. The degree of improvement was determined by their increased ability to perform graduated exercises without untoward symptoms. Patients who, before treatment, showed severe symptoms after performing mild exercises could afterward accomplish the more advanced exercises with comparative ease. This confirms the previous conclusion that the removal of a coexisting infection may lead to the alleviation of symptoms of irritable heart.

Medical Journal of Australia, Sydney

October 27, II, No. 17

16 Parasyphilis. R. H. Marten.—p. 349.
17 Acute Encephalitis of Unknown Origin. T. H. R. Mathewson and O. Latham.—p. 352.

November 3, No. 18

18 Recent Advancement in Physiologic and Biochemical Technic. W. A. Osborne.—p. 369.
19 Study of Heart Disease. A. Lewers.—p. 371.
20 Experimental Study of Fever. J. L. Jona.—p. 373.

Archives des Maladies du Cœur, etc., Paris

October, X, No. 10, pp. 449-512

21 *Asynchronism of the Auricular Systoles. G. Etienne and J. Mondelange.—p. 449.
22 *Indications and Contraindications for Intravenous Injection of Strophanthus Derivatives. H. Vaquez and R. Lutembacher.—p. 461.
23 The Blood Changes in the Toxic Jaundice of Women Workers on Munitions in England. Wybauw.—p. 492.

21. **The Interauricular Interval.**—Etienne and Mondelange have been studying with cardiography the asynchronism between the auricle systoles. Their eighteen tracings confirm conclusively the interauricular interval in man as it has been established in the horse and dog. The cardiogram gives more correct findings in this matter than the electrocardiogram; it demonstrates that the effectual systole of the right auricle precedes the left systole.

22. **Strophanthus Derivatives.**—Vaquez and Lutembacher report extensive clinical study of the indications and contraindications for intravenous injection of strophanthus derivatives and of ouabain in particular. The latter is a very potent drug, but when used wrongly is dangerous; fatalities have been known to follow its use. Twelve clinical cases are described in detail with the tracings.

Archives de Médecine et de Pharm. Militaires, Paris

January, LXVII, No. 1, pp. 1-156

24 *War Fractures with Displacement of Bone. E. Delorme.—p. 1. Concluded in No. 2, p. 157.
25 *Antiseptics Specific for Certain Bacteria. K. Taylor.—p. 48.
26 War Wounds of the Skull. H. Bichelonne.—p. 61.
27 Shell Shock. G. Dumas and Delmas.—p. 69.
28 Hygiene in Munitions and other Factories. C. Lesieur.—p. 78.

February, No. 2, pp. 157-308

29 *The Duties of the "Technical Adjunct." Louste.—p. 221.
30 *Vaccination against Typhoid from the Ophthalmologist's Standpoint. F. de Lapersonne.—p. 236.
31 *Surgical Repair of External Genital Organs after War Wounds. J. de Sard.—p. 239.
32 *The First Devices to Aid the Amputated. Baudet.—p. 245.

24. **War Fractures with Displacement of Bones.**—Delorme is medical inspector general of the French army, and he here presents the results of research on cadavers with fractures and displacement of the stumps or of broken off portions. The differences between these war fractures and ordinary fractures are great as he shows for each of the large bones in turn, with illustrations. Certain general laws are apparent through all, and roentgenoscopy is constantly throwing new light on the subject.

25. **Specificity of Antiseptics.**—Taylor remarks that two years of observation of persisting infection in several thousand cases of war wounds have convinced him that this branch of medicine has made but little progress. Even today it is still impossible to say "This is the proper method to be followed in treating an infected wound." He attributes this to the scant attention hitherto paid to the individual characteristics of the different antiseptics in relation to the characteristics of the bacteria in the wound. We probably

will have to give up the hope of a general antiseptic; we must apply the specific antiseptic for the specific bacteria in the wound. His tabulation of the germ content week by week in different wounds with different bacteria predominating shows more streptococci, *for instance, by the fifth* week than were present the first week in wounds treated with cresol or with hypotonic salt solution. With the pyocyaneus, the figures the first and fifth weeks were respectively 50 and 60 in wounds treated with quinin; 33 and 55 with Dakin's solution; while, treated with acetic acid, the number of germs dropped from 35 the first week, 22 the second, 11 the third, to zero the fourth and fifth. With staphylococci, the figures under cresol were, the first week, 73 and 40 the fifth week; under Dakin's solution they were 77 the first and 40 the fourth week (fifth week not mentioned). With the aerogenes capsulatus, under dry dressings the figures were 2, 2, 3, 7 and 4 on successive weeks, while in the wounds dressed with quinin, from 20 the first week, the figures were constantly zero in the following weeks . These were the most striking findings in his experiments with all the various kinds of antiseptics used in the innumerable cases. The average with all other antiseptics, beside those specified above, showed a higher figure for the germs the fifth, in comparison to the first week, except in the case of the aerogenes capsulatus in which the figures were respectively 12, 7, 6, 7 and 1 on successive weeks.

29. **The Duties of the "Technical Adjunct."**—Louste refers to the general technical supervision of barracks, camps and cantonments and the troops themselves. The office of technical adjunct has been created for the purpose, as a kind of medical efficiency engineer. It presupposes the absolute confidence of the chief of the army medical department who entrusts him with full authority as his representative. It also presupposes the close collaboration and support of the commander of the forces. Louste is himself *adjoint technique* for the fourth district. When he entered on his duties he insisted on a general meeting of the staff at which he explained the importance of close collaboration between the military and the medical departments, the resources which the laboratories can furnish, and the necessity for uniform control, and of a constant and identical surveillance. He here presents his report on conditions in the barracks, camps, etc., with suggestions for improvement. Among the minor improvements which he has brought about, he mentions the great change for the better when the men were able to keep up a vegetable garden; the hundreds of pounds of lettuce, carrots, beans and cabbage thus raised at Laval gave the troops stationed there actual homelike food, not merely the army ration. In regard to drinking water, he says that the rule to boil the water cannot be applied at present on account of the scarcity of coal. Well cared for Chamberland filters are used where they are already on hand. Chlorination of the water seems to be the simplest method for purifying it for barracks and camps, but it must be in the charge of experts, provided with a double set of receptacles.

He remarks that in dealing with the local civilian authorities it should be a principle not to criticize a condition unless one has a simple and practical solution of the problem ready to propose. He deplores that in the education of army officers they are not given training in matters concerning the hygiene, physiology and health of the men in their charge. "Even with all the progress realized," he remarks, "the commanders of the forces are not always in close sympathy with the chiefs of the medical departments. If this regrettable gap could be filled up, the medical officer and the military officer would understand each other better, and close cooperation between the commanding officer and the medical department would be not only an official regulation and on the order of the day, but it would be a living reality, to the great benefit of the country which would find in the army a new source of life based on reciprocal confidence and esteem."

30. **The Eyes as Affected by Vaccination Against Typhoid.**—Summarized in the review of ophthalmology in 1917, abstract 37, p. 1914.

31. **Restorative Surgery of the Genital Organs.**—De Sard gives a profusely illustrated description of four cases in which the external organs of procreation and urination were restored to more or less satisfactory aspect and functioning after destructive war wounds.

32. **The First Aids After Amputations.**—An illustration shows the simple device with which after amputation of the forearm, a fork, spoon or hook is fastened in a reenforced plaster cone, wound with gauze to form a cap which fits over the stump and is held in place by a strap buckled to a cushion on which the elbow rests. With various modifications of this principle the man can use his arm for numerous purposes. A similar temporary plaster dressing, with a lathe incorporated, can serve for the leg, letting the stump hang loose.

Archives Médicales Belges, Paris

October, LXX, No. 10, pp. 897-1000

33 *The First Dressing of a War Wound. H. Vincent.—p. 897.
34 *Reflex Paralysis and Contracture. M. Molhant.—p. 910.
35 *Anesthesia and War Surgery. D. Baruch.—p. 928.
36 *Foreign Bodies in the Brain. H. Burger.—p. 936.

33. **The First Dressing of a War Wound.**—Vincent insists that the interval before infection gets an actual start in a wound is shorter than most believe. Instead of eight or twelve hours, the damage is done in six or even four. He knows of cases of gas gangrene developing in six hours. In certain regions around Verdun, the perfringens was found in every wound. Crushing of tissues from one to eleven days after experimental inoculation of guinea-pigs with nonpathogenic perfringens was followed by development of gas gangrene. He cites further other data to sustain his plea for immediate sterilization of a war wound at the first dressing, especially when the wounded are coming in in large numbers. "When a man is wounded in war, moments are precious. Hours are worth days; hours are worth lives." In many years' experience in Madagascar, from 1894 on, and again in the present war, he has never found anything to equal the efficacy of calcium hypochlorite plus nine parts boric acid for prompt sterilization of wounds. Extensive research always brings him back to this mixture as more effectual than all others. The wound is powdered well with it, and it is insufflated into all the recesses and into seton wounds, running the nozzle of the atomizer deep into the wound. This dry powder is slowly dissolved by the secretions in the wound, taking three or four hours for this. This holds the germs in check, and the man reaches the field hospital with his wound in the same condition as when the wound was first dressed. "Merely to apply an aseptic dressing on the battlefield and at an advanced dressing station is too platonic for the formidable infections stalking the wounded. This dry powder treatment does not interfere in the least with whatever measures are to be taken later, when the man reaches the field hospital." His experience is confirming more and more the effectual sterilization realized by thus powdering the wound thick with a mixture of 10 parts of calcium hypochlorite to 90 parts boric acid passed through a No. 70 sieve.

34. **Reflex Paralysis and Contracture After War Wounds.**—Molhant presents evidence, from his experience at the special hospital for the nervous affections of the war, to the effect that so-called reflex paralysis and contracture are in reality usually the manifestation of a definite and irremediable organic injury. This injury is a terminal neuritis of the sensory nerves, but the manifestations deceptively simulate those of hysteria, and the latter may be superposed on the organic lesion. The symptoms may be of the hypertonic order: reflex irritability; or of the hypotonic order: reflex paralysis. He explains how the motor and sensory fibers are associated throughout except where they leave the spine, and at their terminals. Blocking of the peripheral nervous impulse at either of these points may generate motor disturbance of purely reflex origin, although the lesion which causes the blocking may involve the sensory fibers alone. The terminals of the deep sensory fibers are in the soft parts surrounding joints and in the periosteum. Injury of any of these injures the sensory terminals, and may irritate to excessive functioning or may paralyze. The paretic reflex may be manifested by paralysis or contracture, but the con-

tracture is due merely to excessive functioning of the antagonist muscles. Applying a tourniquet to the root of the limb abolishes the contracture, and we can see that the trouble is really a paralysis with the antagonists getting the upper hand. Instead of keeping these patients on in the hospitals indefinitely, trying to cure their "hysteria," the organic base of their affection should be recognized early and they should be fitted with prostheses and discharged from the ranks or given light duty. He devotes several pages to description of means by which these organic disturbances can be differentiated.

35. **Anesthesia for the Wounded.**—Baruch gives some tracings which show that the suffering induced by an operation is unconsciously perceived by the nerve centers notwithstanding deep chloroform narcosis; this is rendered evident by the immediate intense fluctuations in the blood pressure in the carotid artery. Under the same conditions, but with the trunk nerve blocked with novocain, the blood pressure was not modified. He agrees with those who maintain that the pain excitations transmitted to the nerve centers, especially to those in the bulb, are the effectual cause of operative shock. Faradization of the exposed sciatic nerve in the chloroformed dog will convince the most skeptical. Local anesthesia should be given the preference always when at all practicable, namely, infiltration or regional anesthesia. This blocks the nerve, sparing the nerve centers the strain from perception of the pain, while the anesthetics employed are in such weak solutions that they are free from toxic action and do not modify the functioning of the emunctories. Of equal importance is the fact that they leave intact the patient's capacity for reaction.

36. **Foreign Bodies in the Brain.**—The conclusions of this review of the present consensus of opinion in regard to management of projectiles in the brain are to the effect that the ventricles and the base of the brain must still be regarded as regions inaccessible to surgery. Otherwise, the majority seem to agree that cautious extraction of the projectile at once, through the passage made by its entrance, is the preferable procedure.

Napoleon used to say, "I do not believe in medicine, but I believe in Corvisart"—his physician. His definition of medicine has seldom been surpassed: *l'expérience chez un homme supérieur.* Burger reiterates that experience is a better guide than theory, and that although there are a certain number of men, apparently doing well, who for a year or two have been carrying a bullet, fragment of shell, or shrapnel ball in their brain and seem to tolerate it perfectly, yet the projectile remains always a constant menace for the health, besides the man's worry over its presence. Experience has further demonstrated that the extraction should be done at once. A secondary operation for an apparently well tolerated foreign body is not advised. The work should be done at the first operation, at the same time as all splinters of bone are removed.

Bulletin de l'Académie de Médecine, Paris

October 30, LXXVIII, No. 42, pp. 471-498

37 Némirovsky's Apparatus for Locating Projectiles in the Tissues. S. Pozzi.—p. 474. See Paris Letter, p. 1990.
38 The Epidemics of 1916 in France and the Colonies. Mosny and others.—p. 480.
39 Tetanus in Connection with Chilling of the Feet. H. Vincent.—p. 492. See Paris Letter.
40 Sulphur as Specific Treatment of Psoriasis. L. Bory.—p. 495.

Paris Médical

October 27, VII, No. 43, pp. 337-352

41 *Operative Treatment of Chronic Lesions of the Ascending Colon, etc. G. A. C. de Pury.—p. 337.
42 Electricity in Vocational Training of Disabled Soldiers. J. Larat and A. Billiard.—p. 344.
43 *Posterior Adenoiditis as Source of Meningitis, etc. G. Rosenthal and J. Cheville.—p. 348.
44 Apparatus for Extension of Fractured Humerus. Stern and Bentami.—p. 348.

41. **Chronic Colitis.**—De Pury deplores that too often it happens that chronic intestinal trouble is ascribed to the appendix alone. Appendicectomy without inspection of the adjoining intestines is liable to leave the main source of trouble unmolested. Nine times in ten the cecum is diseased along with the appendix. Particularly important is the perityphlitis with dilatation of the cecum and chronic appendicitis, with more or less constriction of the angle of the colon just below the liver. It is at this angle that the inflammatory phenomena are most frequent and most pronounced, and adhesions most abundant. This is where the trouble starts which brings the appendicitis in its train, and it may set up cholecystitis, pancreatitis, duodenal or gastric ulcer and even disturb kidney functioning and favor development of tuberculous lesions in the kidneys or abdomen, and entail the whole series of gastro-intestinal atonies. Aside from the inflammatory phenomena on the part of the appendix, perityphlitis demands operative intervention whenever the symptomatic trilogy, pain, constipation and autointoxication, persist rebellious to systematic medical and dietetic measures.

The operation should aim to restore the regular open sewer throughout the bowel. The enlarged cecum forming a pocket where feces stagnate must be restored to normal size and shape; all adhesions along the small intestine and colon must be broken up, and any kink in the colon must be straightened out. He gives a detailed description with the roentgen findings in four typical cases of the kind. Conditions were restored to clinically normal by taking up lengthwise folds in the cecum until the lumen was reduced to normal size and shape. He reiterates that the stagnation of feces with secondary infection is always the primary trouble, starting the inflammation in the wall of the intestine, whence it is liable to spread in any direction, but almost inevitably it entails atony of the cecum which stretches, just as the bladder stretches when its wall becomes infected. With both, along with the atony, there is liable to be spasmodic stenosis. The insidious development of the whole trouble and the mildness of the symptoms at first are misleading, so that the nature of the trouble is not recognized. Courses of treatment for neurasthenia, dyspepsia, etc., give no relief, and not even appendicectomy. Uncontrollable vomiting after eating may occur from retrograde peristalsis on account of constricting adhesions or kinking of the bowel, usually both. Vomiting from retrograde peristalsis from this cause is not uncommon in young girls. The clinical picture deceptively simulates that from pylorospasm from dilatation of the stomach or gastric ulcer or stenosis of the pylorus or irritative dyspepsia. In most cases nothing but roentgenoscopy will permit the correct diagnosis. This alone will reveal that in many cases of neurasthenia, etc., the whole trouble is merely constipation from constriction or kinking of the colon, which renders it impossible for it to empty itself completely.

43. **Posterior Adenoiditis.**—Rosenthal and Cheville assert that further research and experiences have confirmed anew that the primary and fundamental seat of meningococcus infection is in the rhinopharynx, a posterior adenoiditis. But whatever its scientific and pathogenic importance, this primary lesion causes no pain and hence is overlooked. Smears from the rhinopharynx may give cultures and cell counts which throw light on many clinical cases of serious infection, and point the way for effectual treatment by sterilization of this primary focus.

Presse Médicale, Paris

November 1, XXV, No. 61, pp. 625-632

45 *Malarial Amnesia. H. de Brun.—p. 625.
46 Immediate Treatment of War Wounds of the Chest. L. Hayem.—p. 627.
47 Resection and Suture of the Intestines for War Wounds. J. Abadie.—p. 629.

November 8, No. 62, pp. 633-644

48 *The Curability of Chronic Tuberculosis of the Kidneys. H. N. Hallé.—p. 633.
49 Talipes Equinus after War Wounds. M. Lance.—p. 635.
50 *Malignant Endocarditis of Slow Course. R. Debré.—p. 638.
51 *Intravenous Injections of Isotonic Sugar Solution in Treatment of Septicemia. G. Audain and F. Masmonteil.—p. 641.
52 Present Status of Ether-Oil Anesthesia by the Rectum. J. Luzoir.—p. 641.

45. **Loss of Memory in Malaria.**—De Brun of late has found amnesia one of the most characteristic features of malarial polyneuritic psychoses. Almost a third of the malaria patients

in his service at the Rueil hospital have more or less impairment of the memory. With a primary attack, the memory of that period may be permanently a complete blank. One of his patients had no remembrance of anything connected with his stay in the hospital and for several months thereafter. The malarial subject may also present retrograde amnesia, unable to remember certain periods in his previous life, possibly back into childhood. Some of the men have forgotten completely a foreign language which they spoke fluently before the malaria. Others have forgotten historical events and geography, or lost their knowledge of music or mathematics. Skilful electricians cannot recall the most elementary principles of physics and electricity, and are unable to instal the simplest electric device. Artisans have forgotten the uses and names of their tools.

The situation is aggravated further by fleeting phases of loss of memory for the ordinary acts and duties of life, amnesia for happenings since the sickness, inability to concentrate the attention. Some complain of headache and visual disturbances whenever they try to focus their attention on anything. They are unable to read with attention, and forget almost at once what they have read. One of the educated men was unable to count beyond ten. Sometimes they write and mail a letter and later in the day write and mail another just like it. They even forget whether or not they have had their meals. Some of the men have been sent to the guardhouse for failing to do what they had been ordered to do. The dangers of such lapses of memory are peculiarly acute in the case of officers. The men acquired the malaria in the Saloniki region, and they do not stay long enough in the Rueil hospital for the ultimate outcome to be known.

48. **Curability of Chronic Tuberculosis of the Kidney.**—Hallé reiterates that removal of the tuberculous kidney usually leaves foci elsewhere in the body. The mortality in the first few years after the operation is still quite high. Pathologic anatomy has demonstrated that there are two forms of tuberculous processes in the kidneys, the closed parenchymatous process, which is spontaneously curable and relatively benign, and the open tuberculous pyelitic process which generally keeps up a progressive and destructive course. The process may be of the first type at first but finally merge into the second type. In the first type, early and active medical treatment would hasten the favorable outcome, but this type is rarely recognized. The second type, if the course is rapidly progressive, calls for nephrectomy at once, but if the course is more benign and slow, expectant treatment is justified, hoping for spontaneous retrogression which occasionally occurs. When an operation is required, nephrectomy is called for. Partial nephrectomy is futile unless for a closed parenchymatous process, and this does not require operative treatment at all.

50. **Slow Malignant Endocarditis.**—Debré remarks that this disease is not sufficiently known and often it is not even suspected. Even when the endocarditis is diagnosed, the physician fails to realize that the ups and downs slowly progress to an inevitably fatal outcome. It does not seem to be contagious, but series of cases have been known at a few points. The streptococcus responsible for it is not usually pathogenic. Possibly meteorologic conditions rouse it to virulence. It has been observed in children and at 52 and 53, but usually young adults are the victims. Nearly all have a history of acute articular rheumatism in childhood, entailing a chronic valvular trouble. Another constant finding is that some mild tonsillitis or laryngitis or attenuated genital infection has directly preceded the endocarditis lenta. This evidently exalts the virulence of the germ and favors its entrance into the blood stream. The loss of strength and flesh, the pallor, irregular fever and slight chills are generally ascribed to influenza. Some joint or joints may swell and a return of the articular rheumatism is surmised. This condition may keep up for weeks, and tuberculosis may be suspected or some blood disease. There is nothing to suggest active endocarditis until finally the tendency to purpura, enlargement of the spleen, the joint and valvular troubles and the discovery of the streptococcus in the blood stream aid in differentiating the disease. There may be periods of improvement, but the trend is inexorably downward. The fatal termination is generally due to some embolic softening of the brain or cerebral hemorrhage from rupture of an aneurysm, or coronary embolism or gangrene of embolic origin. The disease may prove fatal in a few months or not until after two years.

51. **Intravenous Sugar Solution in Septicemia.**—Audian and Masmonteil state that their experience has been constantly favorable with intravenous injection of an isotonic solution of sugar in treatment of septicemia. Where the leukocytes numbered from 5,000 to 7,000 before the injection, afterward the count jumped at once to 25,000 in less than a half hour, and kept at this level for two or three hours, and even then did not decline below 16,000. The polynuclears formed 80 to 90 per cent. of this hyperleukocytosis. The reaction seems as intense as after injection of colloidal metals. The temperature runs up a little, with a chill, followed by sweating, like a malarial attack. Induced hyperleukocytosis is regarded by many as the only rational treatment of infections to date. The sugar solution, besides, provides nourishment and has a stimulating influence on the kidney cells, starting up diuresis. The solution must be isotonic: 47.6 per thousand with glucose; 103.5 per thousand with saccharose, or 108.9 per thousand with lactose. From 300 to 500 gm. have to be injected before the leukocyte reaction is realized, but on repetition in the graver cases they do not hesitate to inject 1,000 or 2,000 gm. during the day, fractioned. The leukocyte count is the guide; they inject enough to keep it about 25,000. A severe chill during the hour following the injection is sign that this limit has been reached. This treatment has proved very useful for the septicemia after war wounds. Sometimes two or three injections of 500 gm. will bring the temperature permanently to normal. In desperate cases the amounts can be larger than this and kept up for ten or twelve days or longer if necessary. They never noticed any untoward by-effects but found it necessary to keep up the treatment four or five days after defervescence. This method of treatment applies also to erysipelas, rheumatism, etc., and they are going to try it in infectious diseases.

Correspondenz-Blatt für Schweizer Aerzte, Basel

October 27, XLVII, No. 43, pp. 1425-1456

53 *Effect of Antipyretics on Fever Center. A. Lüthy.—p. 1425.
54 *Nitrobenzol not an Abortifacient. J. R. Spinner.—p. 1439.

November 3, No. 44, pp. 1457-1504

55 *Treatment of Diabetes. R. Stähelin.—p. 1457.
56 Tumors of Knee Joint Capsule. G. A. Guye.—p. 1474.

53. **Effect of Antipyretics on Fever Center.**—This communication from the Pharmacology Institute of the University of Zurich reports the results of research on the prolonged administration of antipyretics in fevers. With fever of bacterial origin, the drug does not seem to modify the reacting power of the temperature center. As soon as the drug is stopped, the temperature rises again proportional to the degree of the intoxication. On the other hand, if the rise is the result merely of functional irritation of the region of the fourth ventricle, regular administration of antipyretics materially reduces the excitability of the temperature center. This may aid in differentiating in dubious cases.

54. **Nitrobenzol not an Abortifacient.**—A number of cases of poisoning from nitrobenzol are on record in which the drug had been used to induce abortion. Some of them terminated fatally, as in a case described here by Spinner. But only one instance is known of abortion having been induced by this means alone, while seven deaths are known in the sixteen cases cited from the literature. The amounts taken in the fatal cases ranged from a tablespoonful or a swallow to 100 gm. In the one reported successful case the assumed pregnancy may not have actually existed. Cyanosis may be the first symptom, and the odor reveals the cause. Recoveries are on record after ingestion of 100 or 400 gm. The drug is an active poison for the blood, besides irritating and then paralyzing the nervous system.

55. **Treatment of Diabetes.**—Stähelin reiterates that it is actual malpractice to leave a patient with any sugar in his urine when by any means it is possible to banish it permanently. As long as there are even traces of sugar in the urine

there is more or less hyperglykemia, and hence always a menace of gangrene or carbuncle, besides the constant danger of the diabetes progressing to a severe form. By freeing the urine *permanently* of sugar, the *tolerance* for carbohydrates gradually increases. Determination of the amount of carbohydrates the patient can assimilate is a tedious matter for both patient and physician, but it is indispensable. The urine has to be measured and tested daily for the sugar content, and this kept up for several weeks. The patient has to be taught how to collect and measure the urine; he must have a collecting vessel and scales to weigh his food. Stähelin gives tables of the findings over a month or two in some typical cases on ordinary diet, on suspension of carbohydrates, and on their gradual resumption. Drugs have little influence on the glycosuria, and *only in doses that do direct harm* otherwise, but every day new proprietaries are advertised for diabetes, and not only diabetics but some physicians are misled by them. Tabulation of the findings day by day shows plainly that none do any good. If a liter of any kind of a decoction is drunk before retiring, the percentage of sugar in the night urine will certainly drop, but merely because so much water is being voided to dilute it. The patient is convinced that he has improved under the tea drinking, and frequently the physician shares his mistaken impression. The dangerous feature of this mistake is that the really important thing, the dietetic restrictions, is neglected in consequence. The careful working out of the dietetic measures and enforcing them, regardless of everything, usually improve the disturbance in the metabolism to an extent equivalent to a complete cure, and in any event increase the strength, and enable the patient to live for years or even decades in comparative health.

Gazzetta degli Ospedali e delle Cliniche, Milan

October 21, XXXVIII, No. 84, pp. 1121-1136

57 *Influence of Roentgen Rays on Malaria. A. Pais.—p. 1123.

October 25, No. 85, pp. 1137-1144

58 Removal of Polyp in Knee Joint. N. Federici.—p. 1137.

October 28, No. 86, pp. 1145-1160

59 Remuneration for Medical Certificates. E. Villa.—p. 1159.

57. **Roentgen Treatment of Malaria.**—Pais declares that roentgen treatment modifies essentially the course of malaria. Small doses in a first attack attenuate the disease, while large doses change the cycle of the fever. It seems as if the new generations of parasites display exalted virulence under the influence of the radiation. Chronic malaria rebellious to quinin may yield completely under the exposures, or the *infection may* be so modified that quinin may regain its potency. Among the fifty patients thus treated the disease seems to have been arrested in nearly all, and the spleen has subsided to its normal outlines.

Pediatria, Naples

March, XXV, No. 3, pp. 129-192

60 Abscess in Liver of Boy of Eight. R. Jemma.—p. 129.
61 *Cirrhosis of the Liver in Child with Inherited Syphilis. O. Pentagna.—p. 140.
62 Case of Cerebral Bilateral Flaccid Paralysis. R. Vaglio.—p. 151.

61. **Cirrhosis of the Liver in Child.**—The child was 2 years old when symptoms of cirrhosis of the liver developed and proved fatal in less than a year. The necropsy findings confirmed the assumption of inherited syphilis. Mercurial treatment came *too late*; *the liver* had been already irremediably damaged when the child was first seen.

Policlinico, Rome

October 21, XXIV, No. 43, pp. 1281-1304

63 *Diagnosis of Pulmonary Tuberculosis. A. Murri.—p. 1281.
64 *Serotherapy of Meningitis. A. Capogrossi.—p. 1287.
65 Improved Apparatus for Inducing Pneumothorax. E. Morelli.—p. *1292.*

October, Surgical Section No. 10, pp. 393-432

66 *Splenectomy and Omentofixation in Banti's Disease. L. Losio. —p. 393.
67 *War Wounds of the Knee. G. L. Petrilli.—p. 401.
68 *Plastic Operations on the Esophagus. G. Razzaboni.—p. 417.
69 Malignant Edema without Gas Production. I. Scalone.—p. 425. Continuation.

63. **Diagnosis of Pulmonary Tuberculosis.**—Murri protests against a recent ruling by the authorities to the effect that suspects must go to the hospital for thorough examination. He declares that any one skilled in recognition of pulmonary tuberculosis can rely on the clinical findings, examination of the sputum and roentgenoscopy. Long study of the case is superfluous, as a rule.

64. **Serotherapy in Meningitis.**—Capogrossi relates that in twenty-five of his twenty-seven cases of meningococcus meningitis last year, he resorted to intraspinal serotherapy according to the usual technic. The two others were injected with their own serum. The prognosis can be regarded as favorable when the patient is young, and the cerebrospinal fluid is milky and under high pressure, with few germs, and these all intracellular. In such cases recovery is frequent after lumbar puncture alone; the organism seems able to generate its own antibodies under these conditions. The evidence seems to favor the assumption that the meningococci get early into the blood and linger there for some time. This and other data cited suggested the possibility that autoserotherapy might prove effectual. He tried it in two cases in which the cerebrospinal fluid was so purulent and thick that it would not flow. About 7 c.c. of the man's own serum was injected intraspinally twice in one case, but the man died the third day. In the second case, 20 c.c. of the cerebrospinal fluid was evacuated and 10 c.c. of autoserum was injected. The fever subsided at once and within a week the cure was complete. The serum was obtained from 100 c.c. blood drawn from the elbow. It was kept on ice after clotting at room temperature. The autoserum was heated to body temperature before being injected. The venesection should be done at once as soon as the diagnosis is certain. When fresh antiserum is not available, this autoserum might answer the purpose. It certainly is a harmless procedure. In protracted cases, it might prove a valuable adjuvant, when there might be fear of anaphylaxis with continued use of the commercial *antiserum.* The blood in such cases has probably elaborated considerable amounts of spontaneous antibodies, and injecting them into the spinal canal places them just where they are needed.

66. **Operative Treatment in Banti's Disease.**—Losio reports a case which illustrates anew the benefits from splenectomy plus omentopexy, even in advanced cases of Banti's disease with cirrhosis of the liver. His patient was a woman of 58.

67. **War Wounds of the Knee.**—Petrilli relates that wounds of the knee have formed nearly 3 per cent. of the wounded in his service. The wound healed aseptically in 49.2 per cent. of the total 126 cases. In the much infected cases, he keeps the joint open, the exposed bones temporarily flexed and dislocated until the sepsis is conquered, the patient lying prone to facilitate draining, at least for the first few days.

68. **Plastic Operation on the Esophagus.**—Razzaboni gives an illustrated description of the results of his experiments on dogs. He resected through a subhyoid incision a portion of the wall of the upper esophagus, embracing about half its circumference, leaving a defect the size of an Italian penny. This defect was then closed with a flap taken from the rectus muscle in such a way that it included the aponeurosis, muscle fibers and peritoneum. Two of these flaps were prepared and placed in warm physiologic solution while the laparotomy incision was sutured. The flap was fastened to the wall of the esophagus with a marginal interrupted suture, done with the finest silk, the peritoneal surface facing the lumen. The second flap was then sutured over this, the peritoneal surface facing outward, the suture thread passing only through the outer layers of the esophagus wall. The eight dogs thus treated demonstrate the feasibility of the procedure. The continuity of the esophagus wall is restored and the stenosis left is not sufficient to prevent adequate feeding.

Anales de la Facultad de Medicina, Montevideo

August-September, II, No. 7-8, pp. 401-556

70 *Herpes Zoster. E. Boix.—p. 401.
71 *Traumatism in Psychiatry. S. C. Rossi.—p. 502.
72 *Pyelotomy. (La talla pielica.) L. A. Surraco.—p. 539.
73 *Indications for Evacuation of the Uterus in Severe Pneumonia. C. P. Colistro and J. C. Carlevaro.—p. 547.

70. **Herpes Zoster.**—Boix devotes a hundred pages to this exhaustive study of the nature and pathogenesis of zona with reports of a number of unusual cases. In one a four-day infant developed herpes zoster on the right side. In another a woman had intercostal zona a week or two before delivery and the child developed intercostal zona at the second month. This is the only instance of which he has knowledge that suggests possible direct contagion. He cites Pugliesi's case (1891) of general febrile herpes zoster in a young woman, also Boulland's case of bilateral zona complicated with generalized herpes, and Landouzy's case in a physician who has had 100 attacks of herpes since severe zona in his student days. These and other data cited justify the assumption that zona is not exclusively a nerve or skin disease but a combination of both. It is not a morbid entity but merely a clinical syndrome from the combination of the change in the nerve, which may be local or general, old or recent, and the infection, local or general, acute, subacute or chronic, the determining cause of the eruption. The nerve changes and infection may occur simultaneously, as is evident in certain cases of traumatic zona. The different forms of zona are merely different manifestations of the same morbid action, which requires for its production a transient or chronic change in the nerve and some infection which is far from specific although bearing the general designation of herpetic. The unicity of the zona syndrome seems beyond question. Among the cases reported is one in which the zona started in the eye and involved the two superior branches of the trigeminal nerve on the paralyzed side of a woman of 60 with inherited severe nervous taint. In another case the intercostal zona was from a nerve compressed by a diseased bronchial gland in a girl of 8 recently recovered from measles and whooping cough. The vesicles extended down on the fingers. In two other cases in children, inherited syphilis or abdominal tuberculosis evidently afforded a predisposition. In none of the four child cases mentioned was there any pain from the zona. The article is in French.

71. **Traumatism in Psychiatry.**—Rossi is chief of the national insane colony, and he here discusses whether it is possible for mental disease to develop from traumatism alone and whether mental disease after a traumatism differs from that of other origin. He analyzes what has been written on the subject and says that there can be no doubt that there are certain mental clinical pictures which do not need more etiology than a traumatism to explain them, whether the trauma affected the brain directly or not. In others the traumatism may have been merely the provocative cause, of secondary (although of decisive) importance. Traumatism should not be given a higher place in the clinic of the brain than in the clinic of other regions of the body. In respect to the medicolegal responsibility for the traumatism cause, experts should be guided by the general rules for common accidents.

Traumatism can be included in the etiology of mental affections as a determining, occasional or predisposing cause. When it is the determining cause, the symptoms induced are those of denutrition, inhibition or destruction, which induce the clinical pictures of neurasthenia, confusional states or simple demential conditions, according to the severity and the evolution of the traumatism. When the traumatism is merely the occasional cause, it may contribute to the flaring up of latent affections or induce, in association with the symptoms of the other affection, mental symptoms of another character. As a predisposing cause, the traumatism may induce organic lesions which in their healing or evolution, even silent and slow, may serve as an anatomic substratum for organic dementia in the future, or even possibly general progressive paralysis. The medicolegal expert should sift out from the clinical picture the extraneous elements, determine the relations between cause and effect, and draw the prognosis, estimating the degree of mental impairment particularly in relation to the subject's professional and other exigencies.

72. **Advantages of Pyelotomy for Anuria.**—Surraco has only one case to report, but the advantages of incision of the renal pelvis were striking here. The young woman had had anuria for five days from low obstruction of both ureters. The condition was so critical that he made an incision into the renal pelvis without further delay. This permitted evacuation of urine better than if the ureter or the body of the kidney had been opened, while infection could be warded off more effectually and the fistula can be closed at any time with greater ease than when in the body of the kidney or the ureter.

73. **Indications for Instrumental Delivery in Pneumonia.**—Colistro and Carlevaro report two cases in which labor set in during severe pneumonia, and they hastened delivery with forceps. The results were so good that they advocate this systematically in grave bronchopneumonia and pneumonia instead of waiting for spontaneous delivery. The fetus is not exposed to greater danger from the forceps than from the mother's severe infectious disease if left waiting in the uterus. The mother's dyspnea, struggling heart, and fever place her in no condition to stand the stress of labor and delivery. They emphasize, however, that they refer merely to intervention without further danger in itself for the mother.

Cronica Medica, Lima, Peru

October, XXXIV, No. 652, pp. 355-394

74 *Spirochetosis Icterohemorrhagiae at Lima. J. Arce and R. E. Ribeyro.—p. 355.
75 Case of Syphilitic Meningomyelitis. E. Odriozola.—p. 361.
76 Present Status of Spirochetosis Icterohemorrhagiae. J. Arce.—p. 365.
77 Dissociated Jaundice and Cholemic States. H. Castañeda.—p. 375.

74. **Icterohemorrhagic Spirochetosis in Peru.**—Arce and Ribeyro report a case of what seemed to be Weil's disease in a Japanese who had been in Peru for eight years. He recovered in about a month under a sodium sulphate purge, quinin and tonics. At the eighteenth day of the disease guinea-pigs were injected with 5 or 6 c.c. of his urine, and they developed a similar hemorrhagic infectious jaundice, as also other guinea-pigs inoculated with scraps from their kidneys. The microscope further confirmed in the clinical case and in the animals the presence of the *Spirochaetae icterohemorrhagiae* of Inada and Ito. Their communication is dated Sept. 24, 1917, and they remark that so far as they know, it is the first case of the kind reported in America.

La Escuela Medico-Militar, Mexico

I, No. 2, pp. 1-16

78 *The Retina of the Mexican Axolotl. I. Ochoterena.—p. 2.
79 *Treatment of Cicatricial Ectropion. E. Ramirez.—p. 4.
80 Abdominal Hysteropexy. A. E. Vidales.—p. 7.
81 Leishman Ulcer in Chicle-Gum Collectors. E. Cervera.—p. 9.
82 Technic for Collecting Pathologic Material for Examination. E. Cervera.—p. 10. To be continued.
83 Postpartum Hemorrhage. R. Cravioto.—p. 13.
84 Intraspinal Injection of Anesthetics. V. J. Sanchez.—p. 15.

No. 3, pp. 1-22

85 *The Leukocyte Formula in Human Beings, Rabbits and Guinea-Pigs in the Valley of Mexico.. F. Ocaranza.—p. 2.
86 *Technic for Disarticulation of the Hip Joint. D. Moreno.—p. 4.
87 Technic for Collecting Pathologic Products for Examination. E. Cervera.—p. 6. To be continued.
88 Gastro-Enterostomy in Mexico. J. Martinez y Gonzalez.—p. 9. To be continued.
89 Abuse of Dressings. L. H. Moro.—p. 20.
90 Intraspinal Cocain Anesthesia. J. Adalid y Castillo.—p. 21.

78. **Research on Comparative Histology.**—This study of the retina of a lizard-like amphibian found in the Lake of Mexico is accompanied by a large colored plate of the microscopic findings.

79. **Cicatricial Ectropion.**—Ramirez gives an illustrated description of the various technics in vogue for this purpose, and his own method. With this, two triangular flaps are cut, one below the eye and the other at the outer angle. These flaps are swung around to cover the defect, the result being merely a long curving linear scar.

85. **The Leukocyte Count in Mexico.**—This study of comparative physiology of the blood of persons and animals, acclimated in the valley of Mexico, disclosed a remarkable difference in the staining properties of the leukocytes as well as wide differences in the blood count. The figures are the averages from forty guinea-pigs, fourteen rabbits and large numbers of adults, of all trades and professions and of both sexes. In man the neutrophils predominated, form-

ing 51 per cent. of all the leukocytes, while in the guinea-pig the neutrophils and lymphocytes nearly balance each other. In the rabbit the lymphocytes outnumber the neutrophils nearly three to one, and the eosinophils formed 13 per cent. of the total leukocytes; in the guinea-pig, only 5 per cent.

86. **Disarticulation of the Hip Joint.**—Moreno's profusely illustrated article shows the various steps of the operation for this purpose as he applies it. There is no hemorrhage, as the muscle fibers are not severed but only separated from their attachments, as they run parallel to the straight incision. It slants from the posterior superior iliac spine to the upper margin of the greater trochanter. After detaching the tendons and pushing the muscle fibers apart, the head of the femur is dislocated and sawed off and the upper two thirds of the incision are sutured, the lower third drained. So far the operation has been simple. The whole is complete in less than twenty minutes. Then at once, or five or six days later, the limb is amputated. Hemorrhage is warded off by the assistant's fingers pressing on the vessels. This is a simple matter, as there is no bone left in the region. The whole amputation, being only in soft parts, takes but a few minutes—not over fifteen at most. There is no operative shock, no hemorrhage, and scarcely any crushing of the tissues. With this technic, he declares, disarticulation of the hip joint becomes practically a minor operation.

Prensa Medica Argentina, Buenos Aires

October 10, IV, No. 13, pp. 161-172

91 Operation on Sphenoidal Sinus by Endoseptal Route. E. V. Segura.—p. 163.
92 Interpretation of the Phenomena with Electric Stimulation of Nerve and Muscle Tissue. V. Tedeschi.—p. 164.
93 *Atypical Forms of Pneumonia in Young Children. J. P. Garrahan.—p. 168. Commenced in No. 12, p. 148.

93. **Atypical Pneumonia in Young Children.**—Garrahan mentions that in the recent unusual prevalence of pneumonia at Buenos Aires, a remarkable proportion of cases were encountered in infants less than a year old. There were three deaths, but extraneous causes could be incriminated for them. Roentgen examination has led to great progress in the management of pneumonia in young children. He found the right apex the site of the pneumonia in seventeen of his forty-one cases. In a number the onset of fever was accompanied by abdominal pains; in others, a pleural effusion dominated the scene. In one child of 2, in the third month of whooping cough, the pneumonia was accompanied with a comatose condition, with icy extremities. For four days this alarming syndrome was combated with mustard baths, oxygen, camphor, serum, epinephrin, etc. The pneumonia of the right apex was associated with an intense reaction on the part of the pleura, and the disease lasted seventeen days, but complete recovery then was prompt. The particulars of sixteen cases are given and the literature reviewed.

Semana Medica, Buenos Aires

September 20, XXIV, No. 38, pp. 329-354

94 Ancient and Modern Conceptions of Syphilis. D. Speroni.—p. 329.
95 *Management of Delivery with Contracted Pelvis in Infected Cases. J. A. Gabastou.—p. 332.
96 The Charitable Institutions of Buenos Aires. E. R. Coni.—p. 341. Continuation.
97 Identification of Certain Derivatives of Morphin. J. A. Sanchez.—p. 348. Continuation.

95. **Delivery with Contracted Pelvis.**—Gabastou discriminates between primiparas and multiparas in the infected cases of contracted pelvis. Pubiotomy, which might serve well for the latter, is contraindicated for primiparas, other conditions being equal. It is also contraindicated in case of varices on the genitals. With established and grave infection, extraperitoneal cesarean section is, of course, out of the question. The Porro operation is preferable when the fetus is viable.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

September 22, II, No. 12, pp. 1023-1114

98 Experimental Research. (Voor en tegen proeven op levende dieren. V.) G. van Rijnberk.—p. 1023.
99 *Importance of Superficial Tension of the Medium for Ferment Action and Catalysis. J. T. Groll.—p. 1029.
100 *Treatment of Purulent Arthritis of the Knee. J. C. van Vliet.—p. 1042.
101 *Digestibility of Bran Bread. M. Hindhede.—p. 1047.
102 *Reinfection with Syphilis. W. J. Bais.—p. 1052.

99. **Superficial Tension as Factor in Ferment Action.**—Groll writes from the physiology laboratory of the University of Amsterdam to relate much experimental and clinical research on biochemical topics. He discusses in particular the influence on solutions of the superficial tension of various substances and ferments. All the evidence testifies to the great importance of the superficial tension and the viscosity of the medium in modifying the action of ferments and the catalytic processes.

100. **Suppurating Process in the Knee.**—Van Vliet remarks that Opitz as late as April, 1915, advocated amputation at the first signs of suppuration in the knee. Hansing two months later reported eight deaths and nine amputations in twenty-three cases of the kind. The change for the better in the outcome of such cases is shown by Heddaeus' report, in Bruns' *Beiträge*, January, 1917, that he lost only one of seventy patients with suppurating arthritis in the knee and that sixty-three were left with a fairly functionating joint. He got the cases within a day or two after the injury, and after cleaning out the wound he rinsed with 3 per cent. phenol or neutral solution of chlorinated soda, and immobilized.

Later than the second day, no treatment can save the joint. Van Vliet in his work at the Mannheim and Heidelberg hospitals did not get the cases until they were a week or two old. Even at this late stage he obtained excellent results with limited resection and fixation on a wooden frame that held the knee partially flexed, a small gap in the frame directly under the knee allowing for free drainage and open treatment of the wound. The best results were obtained when the patella and the joint cartilages were removed. This ensures better draining and better consolidation later. Open treatment of the wound saves the patient much pain and discomfort, besides the economy in dressings.

101. **Digestibility of Whole Grain Bread.**—Hindhede reiterates that the normal persons whom he subjected to his extensive tests (mentioned recently in these columns) digested bran as well as a pig digests it and, when ground fine, they digested it even more completely than cattle digest it. Von Noorden has also become convinced by experiences during the war that whole grain flour is digestible. He is now even inclined to credit to the extensive use of bran-containing bread a large part of the success attained by the so-called drugless healers. Hindhede pleads therefore that bran should not be taken from people and fed to cattle under the present circumstances. By feeding grains to animals we get back in the form of food only about 20 per cent. of the value.

102. **Reinfection with Syphilis.**—Bais writes from Sumatra to tell of a case of recent primary syphilis treated with such success, the Wassermann reaction veering to normal, that the man returned a year later with a second unmistakable primary infection. This also was conquered within a few months, the same as before. The Wassermann reaction was still negative when reexamined nine months after this second infection. The tenth month he returned with his third primary infection. The spirochetes swarmed in the primary chancre each time. Neosalvarsan and mercury had been the treatment. In a second case of reinfection there was evidence that the man contracted the infection the second time from a woman he had himself infected at his first attack, thus the same strain of spirochetes was presumably responsible for both. Bais thinks that the publication of such cases of positive cure will lessen the tendency to neurasthenia in those acquiring the disease.

Hospitalstidende, Copenhagen

October 10, LX, No. 41, pp. 997-1020

103 *The Influence of Treatment of Syphilis on the Different Reactions in the Cerebrospinal Fluid. C. With.—p. 997. Commenced in No. 40, p. 973.

103. **Influence of Treatment on Reactions in Spinal Fluid in Syphilis.**—With analyzes and tabulates the findings in this line at the dermatologic service at the Copenhagen General Hospital.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. LXIX, No. 26 CHICAGO, ILLINOIS DECEMBER 29, 1917

TRANSFUSION OF UNMODIFIED BLOOD

AN ANALYSIS OF ONE HUNDRED AND SIXTY-FIVE CASES

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The results of 165 transfusions performed by means of the simple technic[1] I described in 1915 have been so encouraging as to warrant a report. This paper will present (1) an analysis of the effects of transfusion on various clinical conditions; (2) a comparison between the use of unmodified and modified blood, and (3) a summary of the results of all the transfusions.

INDICATIONS FOR TRANSFUSION

The indications for transfusion are (1) hemorrhage; (2) diseases of the blood; (3) toxemias; (4) infections; (5) shock, and (6) general debility.

1. *Hemorrhage.*—This is one of the conditions in which blood transfusion is the ideal form of treatment. It serves not only to replace lost blood but also to check actual bleeding. In acute hemorrhages, the results are naturally more brilliant than in less fulminating bleeding.

The diseases in which hemorrhage served as the indication for the transfusion of blood fall into the following nine groups: (*a*) gastric or duodenal ulcer; (*b*) typhoid fever; (*c*) postoperative hemorrhage; (*d*) ectopic gestation; (*e*) uterine hemorrhage; (*f*) ulcerative colitis; (*g*) jaundice; (*h*) hemorrhages associated with blood diseases, and (*i*) miscellaneous cases.

(*a*) Gastric or Duodenal Ulcer: There were seven transfusions done in five cases of gastric or duodenal ulcer. The supposition that, owing to the rise in blood pressure following a transfusion, the bleeding in gastric ulcer will be increased seems to have no basis in point of fact.

All of the patients were in an extremely critical condition. One transfusion was sufficient to check the hemorrhage in four of the five patients, even though they were bleeding at the time the transfusion was performed. Three of the patients made a prompt and striking recovery. They were converted within a comparatively short time from moribund individuals to convalescents. Plans for operation were abandoned because of their return to perfect health. Two of the five patients died. Each received two transfusions. In one the first transfusion checked the hemorrhage and improved his condition to such an extent that an operation with a preliminary transfusion was resorted to. The other patient was given two transfusions, neither of which succeeded in checking the hemorrhage. This was the only true failure in this group of cases.

(*b*) Typhoid Fever: Three transfusions were performed in two cases of typhoid fever because of complicating intestinal hemorrhage. In one of these, a patient of Dr. Evan M. Evans, transfusion of 1,200 c.c. checked the hemorrhage. During a subsequent relapse there was no recurrence of the bleeding, and the patient made a complete recovery. The other patient was on Dr. Libman's service at Mount Sinai Hospital. Although prompt improvement followed the introduction of 800 c.c. of blood, within a few hours she had another profuse hemorrhage. One thousand c.c. of blood were then given, but subsequent profuse hemorrhage proved fatal.

(*c*) Postoperative Hemorrhage: There were four cases of this kind. The hemorrhages followed gastro-enterostomy, cystoscopy and operations for cholecystitis and for osteomyelitis. All the patients were in a very critical condition, but following the introduction of the new blood they promptly made an uneventful recovery. The result in the patient in whom the bleeding followed gastro-enterostomy was very striking. Besides an immediate cessation of bleeding, the wild and increasing delirium entirely disappeared. Abnormal mental states varying from mild delusions to delirium frequently disappear in this way. These mental symptoms are due to anemia, and vanish when the hemoglobin and the number of red cells is increased.

(*d*) Ectopic Gestation: The three patients in this group were so desperately ill that immediate operation was deemed contraindicated. Transfusions changed the condition of all three so that surgical intervention was warranted. The lives of these three women were saved by the preliminary transfusions.

(*e*) Uterine Hemorrhage: Four transfusions were carried out in three cases of uterine hemorrhage. All the patients recovered. Two were saved from impending death. The transfusions were performed before the operation in order to replace the large quantity of blood lost. Two were instances of retained secundines and the third one of chorio-epithelioma. Two transfusions followed by a hysterectomy (by Dr. L. Druskin) were performed on the last patient referred to. She then made an uninterrupted recovery.

(*f*) Ulcerative Colitis: Three patients on whom six transfusions were performed had ulcerative colitis. All were greatly improved not only as regards their blood but in strength and appetite as well. In two the local condition at once began to respond to treatment. The third, in spite of three transfusions with attendant improvement in the general condition, obstinately resisted all local treatment. Transfusion for ulcerative colitis is of benefit, by increasing the patient's vitality and by rendering the local condition in the intestine more responsive to treatment. Repeated transfusions are usually necessary in this disease.

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[1] Unger, L. J.: A New Method of Syringe Transfusion, The Journal A. M. A., Feb. 13, 1915, p. 582; Recent Simplifications of the Syringe Method of Transfusion, Sept. 18, 1915, p. 1029.

(*g*) Jaundice: Unfortunately this series does not include this condition. Transfusion should, however, be employed in cases of jaundice both to check active bleeding and as a prophylactic measure previous to operation when the coagulation time is considerably prolonged.

(*h*) Hemorrhage Associated with Blood Diseases: These cases are fully discussed under the general heading of diseases of the blood. In twenty-three the transfusions were given to check hemorrhage accompanying blood diseases. In eighteen it succeeded, while in five it failed. Four of these failures were in purpura hemorrhagica, and one in a case of melena neonatorum in which the patient was moribund. In four cases of leukemia, not included in the foregoing number, the bleeding was incidental, and transfusion was given not to check hemorrhage but for the underlying blood condition.

(*i*) Miscellaneous Cases: This group includes four cases and eleven transfusions. One patient had hematemeses of unknown origin. Neither an operation nor a subsequent necropsy cleared up the diagnosis. Two had intestinal hemorrhage of unknown etiology. The fourth bled from multiple hereditary telangiectases. Some of these transfusions were life saving in character. In all, bleeding ultimately recurred, and repeated transfusions were necessary.

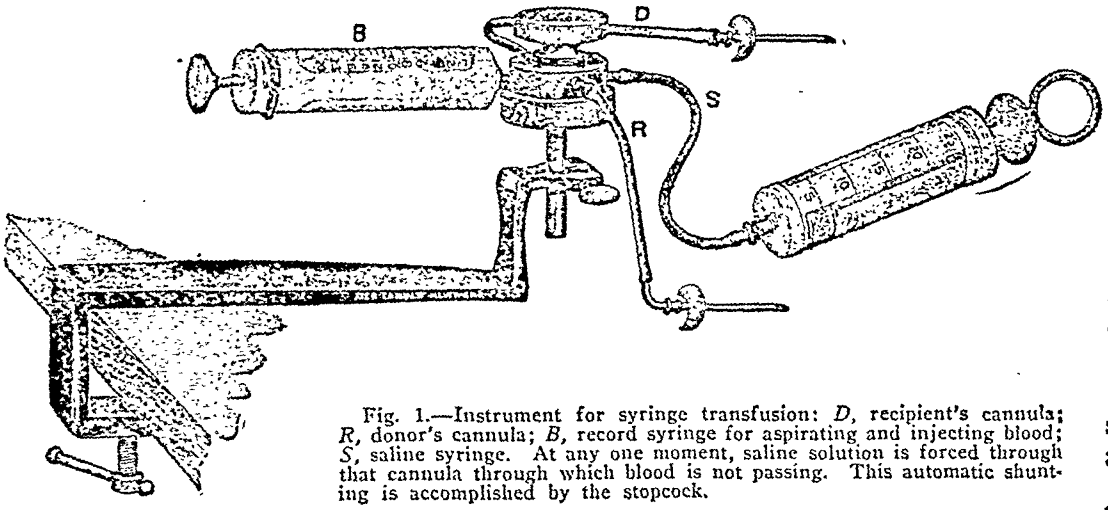

Fig. 1.—Instrument for syringe transfusion: *D*, recipient's cannula; *R*, donor's cannula; *B*, record syringe for aspirating and injecting blood; *S*, saline syringe. At any one moment, saline solution is forced through that cannula through which blood is not passing. This automatic shunting is accomplished by the stopcock.

Summary: Sixty-two transfusions were done in forty-seven cases of hemorrhage. Twenty-four patients had acute or chronic hemorrhage. Nineteen, or 79 per cent., of these, recovered — twelve because of transfusion alone, seven as a result of transfusion and operation. In the latter cases the surgeon was unwilling to attempt any operative measures without a preliminary transfusion. In fifteen, or 62 per cent., the transfusion was a life-saving procedure.

Eighteen of the twenty-three patients with hemorrhage associated with blood diseases recovered. In fifteen, or 65 per cent., transfusion was a life-saving measure.

2. *Diseases of the Blood.*—The clinical conditions were: (*a*) secondary anemia; (*b*) pernicious anemia; (*c*) hemophilia; (*d*) purpura hemorrhagica; (*e*) leukemia; (*f*) bleeding of the new-born, and (*g*) miscellaneous (Banti's disease, von Jaksch's anemia and Henoch's purpura).

(*a*) Secondary Anemia: In one patient the anemia followed malaria; in another (an infant) it was associated with malnutrition. Both patients responded promptly, and made a perfect recovery.

(*b*) Pernicious Anemia: Twenty-three transfusions were performed in fifteen cases of pernicious anemia. The lives of five were saved as a direct result of the transfusions; five patients were greatly improved; the remaining five died within a comparatively short time. Some of these cases could not be followed sufficiently long to pass judgment on the length of time for which the patients were benefited. As a result of repeated transfusion, two have done well for a period of about two years, and another for a period of eight months. A fourth died after a remission lasting six months.

The results of transfusion in pernicious anemia are superior to those achieved by any other mode of therapy. Frequently it acts as a life-saving measure by initiating the onset of a remission. There is no evidence, however, to show that the disease can be permanently cured in this way. Nevertheless, by repeated transfusions, remissions can be effected and the lives of some patients made useful for years. In such cases, if possible, the same donor should successively be employed. The amount of blood does not seem to be the determining cause of a remission. Small amounts have as often been of value as large amounts. When transfusion is successful, the marked increase in strength and appetite is very striking. It will relieve the anemia and the symptoms secondary to it—dyspnea, palpitation, mental symptoms, etc. In no instance did it lead to the secretion of hydrochloric acid by the stomach.

If transfusion is repeated because the first one failed to bring on a remission, different donors should be employed until, if possible, the desired effect is achieved. In such cases, subsequent transfusion should be resorted to, however, before all that has been gained by the previous one has been lost. In certain cases, even this procedure is of no avail.

(*c*) Hemophilia: Eight transfusions were performed in seven cases of hemophilia. All the patients recovered. Five transfusions were life-saving measures. The bleeding was controlled by one transfusion in all but one case. This child, who was bleeding from a lacerated wound of the tongue, received an unmodified blood transfusion which controlled the hemorrhage for four days. A transfusion of citrated blood was then given, but did not control the bleeding. Within a week, two whole blood transfusions were performed, and these checked the hemorrhage. Two of our patients returned months later because of fresh hemorrhages.

Transfusion does not permanently cure the disease hemophilia. It is, however, practically a specific for the bleeding of hemophilia. It will succeed when other measures fail. Five of the patients were treated unsuccessfully with thromboplastin (Squibb), coagulen (Ciba), epinephrin, astringent solutions, citrated blood, subcutaneous injections of whole blood, and iodoform gauze packing. In four of the cases thus treated, bleeding was stopped by one unmodified blood transfusion, while in one case two transfusions were required. In this connection it must, however, be remembered that transfusion is resorted to only in cases in which other measures have failed. Valuable time should not be wasted in attempts to control bleeding by these methods when we have at our command a specific that will not only control the hemorrhage but also replace the lost blood. The danger of delay is illustrated by the following case:

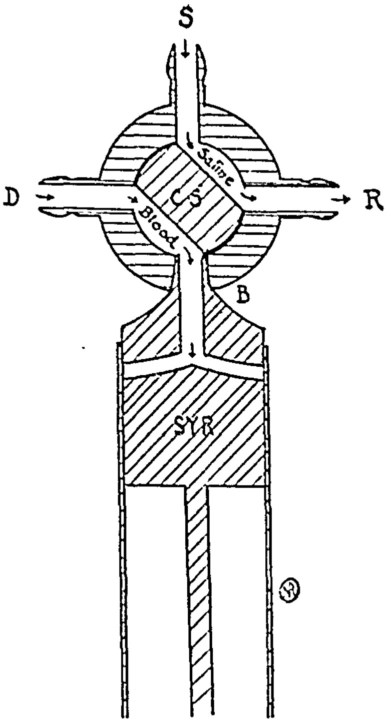

Fig. 2.—Donor's position: *D*, donor's outlet; *B*, blood outlet; *SYR*, blood syringe. Blood passes from donor's vein through *D*, and out at *B* into *SYR*. *S*, saline outlet; *R*, recipient's outlet. Saline solution is forced from saline syringe through *S*, out at *R*, into recipient's vein. *C S*, central stopper (rotates through an arc of 90 degrees).

A child, aged 4 years, was known from his family history to be a hemophiliac. For a period of eleven days prior to being admitted to Dr. Koplik's service at Mount Sinai Hospital, packing with various astringent solutions and also coagulen were used to check bleeding from the nose. By this time the hemoglobin was 25 per cent., and the patient was in such a desperate condition that death seemed imminent. A transfusion of 400 c.c. of whole blood immediately checked the hemorrhage, and raised the hemoglobin to 50 per cent. Eight months later when his nose again began to bleed, it was immediately packed with gauze soaked in thromboplastin and a transfusion at once performed. The hemorrhage was controlled before there was any great loss of blood.

(*d*) Purpura Hemorrhagica: Purpura hemorrhagica is a condition that one would expect to be favorably influenced by blood transfusion. The results of the six cases in this series were not, however, as good as we should hope for. In two of the cases the bleeding was controlled, in one it was not at all affected (epistaxis), and in three death ensued.

In the three fatal cases, the patients were in extremely poor condition and had the severest manifestations of purpura. All three had numerous petechiae, purpuric spots, hematomas and active bleeding, such as from the gums, nose, kidney and vagina. They all showed typical findings of purpura hemorrhagica—a secondary anemia, diminished blood platelet count, positive capillary resistance test, normal coagulation time, prolonged bleeding time, and positive puncture test. In one case the bleeding time was more than an hour; at this point the test was discontinued and the bleeding had to be controlled by pressure.

The paradoxical finding in purpura of a diminished platelet count with a normal coagulation time has recently been shown by Dr. Alfred F. Hess to be only apparent.[2] As a matter of fact, purpuric blood actually has a normal amount of blood platelet material. This material exists in two forms — the visible platelets, and platelets that are in solution in the plasma. He believes that purpura hemorrhagica is caused by a toxin which not only dissolves blood platelets but may also injure the blood vessel walls, bringing about the other manifestations of the disease. Since in certain hemolytic diseases the toxin is thought to be associated with the spleen, he has suggested that in purpura, after preliminary transfusion, splenectomy be performed. This suggestion gains added force when we remember that following splenectomy there is an increase in blood platelets. In view of the marked fatality of some forms of this disease and the rather discouraging result from transfusion alone, or any other form of therapy in this type, this suggestion ought to be given a trial.

(*e*) Leukemia: In six cases of acute lymphatic leukemia, thirteen transfusions were performed. Three cases were practically counterparts of one another, and occurred in adults. These patients were bleeding from a mucous membrane, and had petechial and purpuric spots, fever, marked secondary anemia, a typical leukemic white count, and negative blood cultures. One had enlarged glands, and two an enlarged spleen. The transfusions in all these cases raised the hemoglobin; increased the number of red blood cells; diminished the number of white cells, leaving the differential count practically unchanged; lowered the temperature; improved the general condition, and stopped the hemorrhages. But in all three, relapse soon occurred, bleeding recommenced, and the result was fatal.

One of these patients, who came from Dr. Alfred Meyer's service at Mount Sinai Hospital, was given a "substitutive transfusion." A phlebotomy of 500 c.c. was immediately followed by a transfusion of 1,000 c.c. A second phlebotomy of 600 c.c. was followed by a second transfusion of 1,000 c.c. from another donor. The benefit lasted for six days, when he became rapidly worse and died.

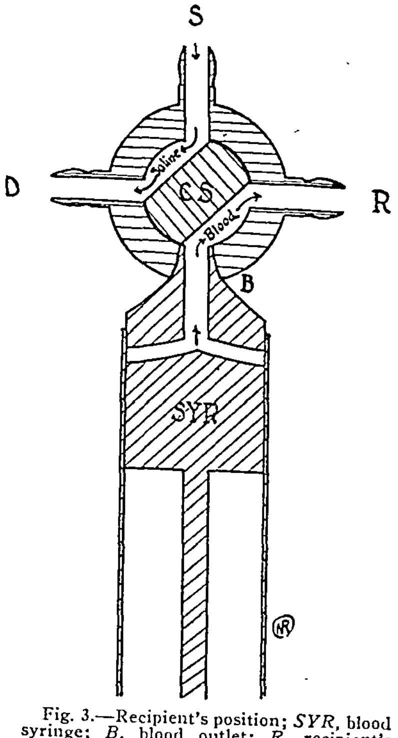

Fig. 3.—Recipient's position; *SYR*, blood syringe; *B*, blood outlet; *R*, recipient's outlet. Blood is forced out of *SYR* through *B*, out at *R*, into recipient's vein. *S*, saline outlet; *D*, donor's outlet. Saline solution is forced from saline syringe through *S* out at *D* into donor's vein. *C S*, central stopper.

The other three cases were in children with subleukemic leukemia. These patients had fever, a profound anemia with a normal or diminished total number of leukocytes, but a high percentage of lymphocytes. In one patient an attempt was made to influence the course of the disease by repeated transfusions. After each of eight transfusions, his general condition and anemia were improved. Soon, however, it became evident that no permanent impression on the disease was being made, but that it was merely being prolonged. I wish to emphasize the fact that one other patient was seen early in the disease, before the diagnosis of leukemia was made. The transfusions were given to overcome marked anemia. Although repeated transfusions sustained the hemoglobin, the white count became typical of leukemia. It is evident, therefore, that in acute lymphatic leukemia only a temporarily favorable effect can be secured by transfusion, even though we withdraw a large amount of blood by phlebotomy and make use of a massive transfusion from two donors, or employ repeated transfusions, in spite of carrying out such transfusions very early in the disease.

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[2] Hess, A. F.: Proc. Soc. Exper. Biol. and Med., 1917, 14, 96.

TABLE 1.—RESULTS OF TRANSFUSION FOR HEMORRHAGE

Indication	Number of Transfusions	Number of Cases	Recoveries (Hemorrhage Checked)		Deaths	
			Prognosis Bad; Life Saved	Prognosis Not Bad	Temporary Improvement	No Improvement
Gastric ulcer	7	5	3	0	1	1
Typhoid fever	3	2	1	0	0	1
Postoperative hemorrhage	4	4	4	0	0	0
Ulcerative colitis	6	3	0	3	0	0
Hemorrhage with blood diseases	24	23	15	3	2	3*
Ectopic gestation	3	3	3	0	0	0
Uterine hemorrhage	4	3	2	1	0	0
Miscellaneous cases	11	4	2	0	1	1
	62	47	30	7	4	6

* One of these patients is still alive, but the transfusion did not entirely check the hemorrhage.

(*f*) Bleeding of the New-Born: In nine of the ten cases of this kind of bleeding, transfusion proved a life-saving measure. The one patient who died was moribund when the transfusion was started. In bleeding of the new-born, transfusion is a specific. An almost exsanguinated infant, too weak to cry and in a dying state, is immediately transformed into an apparently healthy, rosy and crying baby. As in hemophilia, it will save the lives of those who are not helped by subcutaneous injections of serum or blood. Temporizing by using less effective measures may cost the baby's life. This is especially true in cases of melena neonatorum, which are the most serious because we do not know just when the hemorrhage began or how much internal hemorrhage is taking place. Just as soon as the diagnosis of bleeding from the stomach or bowel of the new-born is made, transfusion should be performed. In cases of melena it is well to remember that because of the blood in the intestine, the stools may be tarry for one or two days after the transfusion, although the hemorrhage has stopped.

In one case the bleeding followed circumcision, and another patient bled from the cord. Eight bled from the bowel in addition to other hemorrhages from such sources as the stomach, kidney, vagina, hard palate or skin. The ages of the patients with melena varied from 32 hours to 6 days. The amount transfused varied from 80 to 150 c.c. No untoward reaction followed any of these transfusions. In every case the median basilic vein was used for the introduction of the blood. An incision from one-fourth to three-eighths inch long directly over the vein is sufficient even in the youngest child. The superior longitudinal sinus was not selected because of possible dangers associated with its use, and because the median basilic vein affords a comparatively simple approach. If the inferior wall of the superior longitudinal sinus is accidentally perforated, there is real danger of injecting blood on the brain or of active hemorrhage occurring, especially as these patients have a hemorrhagic tendency. Using this route for aspirating blood for examination (syphilis, bacteremia) is quite another matter, particularly in nonhemorrhagic cases.

(*g*) Miscellaneous Cases: There were four cases of Banti's disease. All of these patients died. There was one patient with von Jaksch's anemia who was greatly improved after the transfusion, but whose ultimate welfare could be not be followed, and one with Henoch's purpura, whose symptoms were relieved by transfusion.

Summary: In pernicious anemia, transfusion is of value and to be recommended, but can be expected to produce remissions in only about half of the cases. In hemophilia it can be relied on to stop the hemorrhage, but in no way to affect the course of the disease. In purpura it is much less reliable; in fact, recovery followed in only two of our six patients. In acute leukemia it is of but temporary benefit. In bleeding of the new-born it is a specific and essentially a life-saving measure.

3. *Toxemia.*—Transfusions have long been employed in a limited number of types of toxemia. It is in this group that we ought to enlarge the indications, especially in toxemias associated with acute infections, such as pneumonia and typhoid fever. A remarkable and unexpected result of transfusion in a case of toxemia of pregnancy ought to be followed by further attempts at combating this disease in this way. Transfusions were done for toxemias associated with: (*a*) pneumonia; (*b*) pyogenic infections; (*c*) coal gas poisoning; (*d*) morphin poisoning; (*e*) uremia; (*f*) scurvy, and (*g*) toxemia of pregnancy.

(*a*) Pneumonia: Four children with bronchopneumonia were transfused because of extreme toxemia. They were all in very poor condition at the time, but responded favorably and progressed to recovery.

TABLE 2.—RESULTS OF TRANSFUSION FOR BLOOD DISEASES

Indication	Number of Transfusions	Number *of* Cases	Recoveries		Deaths	
			Bad Prog*nosis;* Life Saved	Prognosis Not Bad	Temporary Improvement	No Improvement
Secondary *anemia*	2	2	1	1	0	0
Pernicious anemia	23	15	5	5	4	1
Hemophilia	8	7	5	2	0	0
Purpura hemorrhagica	6	6	1	1	2	2
Leukemia	13	6	0	1	5	0
Bleeding of new-born	10	10	9	0	0	1
Miscellaneous	6	6	0	2	4	0
Total	68	52	21	12	15	4

(*b*) Pyogenic Infections with Extreme Toxemia: There were four patients: two had empyema pleurae, one had salpingitis and peritonitis, and one a subphrenic abscess. All were extremely toxic and died following temporary improvement.

(*c*) Coal Gas Poisoning: In the sole case of coal gas poisoning in this series, the patient had beginning pulmonary edema, and was moribund when seen. In fact, in order to keep him alive until transfusion could be performed, artificial respiration was employed. Although transfusion was preceded by phlebotomy, the result was fatal.

(*d*) Morphin Poisoning: Although no case of this type was treated, it is interesting to note that the effects of morphin given previous to some of the transfusions seemed to be lessened immediately thereafter.

(*e*) Uremia: All three patients with uremia were in a hopeless condition. Transfusion was followed by a transitory improvement in the course of the disease. Although this series includes no transfusions for diabetic coma, the results of others have been unsatisfactory.

(*f*) Scurvy: Although many consider this condition a deficiency disease, others believe it is due to a toxin, and therefore it has been included in this group. The one patient had subacute scurvy. Improvement was immediate and marked. A pulse of 180 and respiration of 60 (cardiorespiratory syndrome of Hess) were changed to 120 and 40, respectively. The inability to gain in weight that is characteristic of scurvy was overcome.

(*g*) Toxemia of Pregnancy: The one case of this type, a patient of Dr. Rongy, was deeply jaundiced, comatose and moribund. The toxemia was hepatic in origin. Transfusion was preceded by phlebotomy. The coma soon disappeared, but in spite of the fact that for a time the outcome seemed dubious, she made a complete recovery.

4. *Infections.*—These cases may be divided into two groups: (*a*) localized pyogenic infections, and (*b*) bacteremia.

(*a*) Localized Pyogenic Infections: In an effort to increase the patients' vitality and to overcome the infection, five patients with intractable suppurative processes were transfused. Three were greatly improved and went on to recovery. They suffered from pelvic abscess, multiple abscesses of the kidney, and pyarthrosis. All were also given surgical treatment. Two patients died, one of gas bacillus infection of the leg and one of pylephlebitis. After each of the five transfusions given the latter patient, there was a period of temporary improvement.

(*b*) Bacteremia: Eleven transfusions were given ten patients with bacteremia. There were two cases of infective endocarditis, one of bacteremia following cholecystectomy, and seven of puerperal sepsis. In all there was an improvement of the general condition, and in some a cessation, for a short period, of the chills. The temporary benefit was followed by death. Perhaps, however, the bacteremia could be combated in some instances if immune donors were used in an attempt to establish a passive immunity.

5. *Shock.*—Transfusions were performed in three cases because of shock. Two were postoperative and one traumatic in origin.

One of these patients had been run over by a heavy automobile truck, sustaining a compound fracture of the humerus. As there was a possibility of internal hemorrhage from a ruptured spleen, transfusion and exploratory laparotomy were performed. It was then evident that the signs were those of profound shock and not hemorrhage. The patient made a complete and remarkable recovery. The second patient was transfused immediately after a splenectomy (Dr. Howard Lilienthal), and recovered. In the third case, shock was also postoperative in origin. Here, however, various drugs as well as an intravenous infusion of saline solution were employed before transfusion was resorted to. After a brief rally, the patient died.

It is interesting to note that the two patients who recovered were transfused almost immediately after shock became evident. It is possible that the time element is a deciding factor.

6. *General Debility.*—Transfusion as a supporting measure was employed (*a*) preliminary to operations, and (*b*) in debilitating diseases.

(*a*) Preliminary to Operations: There were six patients with carcinoma with such a severe grade of anemia that they were considered poor operative risks. Five had carcinoma of the stomach, and one carcinoma of the head of the pancreas. Four survived the operations, and two died. There is no doubt that transfusion lessened the postoperative mortality.

(*b*) Debilitating Conditions: The patients included in the preceding group suffered from debilitating diseases, but since they were in fair condition, operation was permissible. There were, however, fourteen other similar patients. Six had carcinoma, but were in such desperate straits that operation could not be thought of. They were transfused merely to improve their general condition and prolong their lives. Five were transfused as measures of last resort. All were moribund. The diagnoses were ulcerative colitis, syphilitic stricture of the jejunum, acute insufficiency of the liver, and pemphigus (two cases). Patients with interstitial nephritis, acute parenchymatous nephritis, and cirrhosis of the liver were improved by the transfusion, and were able to leave the hospital.

TECHNIC

All of the 165 transfusions were performed by the method previously reported.[1] This method utilizes the instrument described in the accompanying illustrations. The mechanical principle involved is the establishment of two channels by means of which a record syringe is automatically connected alternately with a vein of the donor and then with one of the recipient. At the same time that the record syringe is connected with the donor for the aspiration of blood, a syringe with saline solution is connected with the recipient, and vice versa. It is this immediate and continued flushing with salt solution of the channel through which blood is *not* passing that insures freedom from clotting.

The technic is as follows: Alongside the instrument, which has been fixed to a table, the arms of the patient and the donor are placed. The tubes leading from the instrument are connected to the cannulas after the latter have been inserted through the skin into the recipient's and the donor's veins. A record syringe is then inserted into the instrument, and blood is aspirated. When the syringe is filled, the stopcock is turned and the blood is injected. A continuous stream of saline solution is forced in a direction opposite to the flow of blood. This procedure is continued until the desired amount is transfused. By means of a spray, a stream of ether is played on the barrel of the record syringe while it is being filled with and emptied of blood in order to prevent clotting. In this way only one record syringe is required, regardless of the amount transfused.

COMPARISON BETWEEN THE USE OF UNMODIFIED AND MODIFIED BLOOD

One of the points of active interest in connection with transfusion is that of the relative merits of unmodified blood and of blood that has been modified by means of small amounts of sodium citrate. As is well known, the latter method has recently gained considerable vogue, and, indeed, by some is claimed to render other methods of transfusion unnecessary. This is the view that has been recently stated by Bernheim.[3] From my point of view, transfusion of unmodified blood cannot be so lightly set aside. It has been shown recently by Novy[4] and DeKruif that blood acquires toxic properties in direct proportion to the path it travels toward coagulation. Even though it does not absolutely coagulate, processes take place within it, as soon as it is poured forth from the vessels, that change its nature and render it less suitable as a body fluid. These studies are new and as yet incompletely worked out. They seem to show, however, what *a priori* would seem to be most likely, that from a biologic point of view such a delicate tissue must be altered in the carrying out of a transfusion of citrated blood[5] because of its considerable sojourn outside the body. From a clinical standpoint, this alteration is also evidenced. Frequently chill and fever and occasionally vomiting follows transfusion of citrated blood, while whole blood is only occasionally followed by fever, and a chill is the exception.[6] I believe that for diseases in which blood is indicated for itself, that is, when it is required as a tissue, as in the various anemias, there can be no question as to the relative merits of unmodified blood which runs almost from vessel to vessel and of that which has remained for an indefinite length of time outside of the body. The transfusion of unmodified blood is the procedure of choice. It must be admitted, however, that the technic for giving citrated blood is simple, and that therefore in cases of hemorrhage, in which the purpose is not so much to supply normal for pathologic blood as to furnish the impoverished circulation with an adequate supply or to bring about cessation of hemorrhage, citrated blood may serve as a substitute.

SUMMARY OF RESULTS

In all, 165 transfusions were performed on 128 patients. These can be classified according to results as either recoveries or deaths.

1. *Recoveries.*—Seventy-one, or 55 per cent., of the patients recovered. They either had very bad prognoses and their lives were saved, or they had better prognoses and were definitely helped. The lives of forty-four, or 34 per cent., were saved by the transfusion. The vast majority of these had hemorrhages or diseases of the blood.

(*a*) Cases in Which Life Was Saved:[7] Bleeding gastric or duodenal ulcer, 3; intestinal hemorrhage in typhoid fever, 1; postoperative hemorrhage, 4; ectopic gestation, 3; uterine hemorrhage, 2; intestinal hemorrhage of unknown origin, 2; profound secondary anemia following malaria, 1; pernicious anemia, 5; hemophilia, 5; purpura hemorrhagica, 1; bleeding of the new-born, 9; toxemia in pneumonia, 4; scurvy, 1; toxemia of pregnancy, 1; shock, 2.

(*b*) Cases in Which There Was Definite Benefit, but in Which the Transfusion Was Not a Life Saving Procedure: Ulcerative colitis, 3; uterine hemorrhage, 1; profound secondary anemia, 1; pernicious anemia, 5; hemophilia, 2; purpura hemorrhagica, 2; acute lymphatic leukemia, 1; von Jaksch's anemia, 1; Henoch's purpura, 1; profound anemia secondary to chronic suppuration, 3; carcinoma of stomach, 4; acute parenchymatous nephritis, 1; chronic interstitial nephritis, 1; hepatic cirrhosis, 1.

2. *Deaths.*—In eight patients there was no improvement, although from the nature of the disease a good result might have been expected. The deaths of the others were due to the underlying disease. Some were in such a condition that although little was expected of the transfusion, it was done as a measure of last resort. In the others, death was preceded by temporary improvement.

(*a*) Cases in Which a Good Result Might Have Been Expected: Bleeding gastric ulcer, 1; intestinal hemorrhage from typhoid fever, 1; hemorrhage from multiple hereditary telangiectases, 1; pernicious anemia, 1; purpura hemorrhagica, 2; bleeding of the new-born, 1; shock, 1.

(*b*) Cases in Which Death Was Due to the Underlying Disease: Gastric ulcer (the patient died following an extensive operation), 1; hematemeses of unknown etiology, 1; pernicious anemia, 4; purpura hemorrhagica, 1; acute leukemia, 5; Banti's disease, 4; empyema of the thorax, 2; acute salpingitis, 1; subphrenic abscess, 1; uremia, 3; coal gas poisoning, 1; pylephlebitis, 1; gas bacillus infection, 1; infective endocarditis, 2; bacteremia following cholecystectomy, 1; puerperal sepsis, 7; carcinoma of stomach, 5; carcinoma of colon, 2; carcinoma of the head of the pancreas, 1; ulcerative colitis, 1; pemphigus, 2; syphilitic stricture of the jejunum, 1; acute hepatic insufficiency, 1.

TABLE 3.—SUMMARY OF RESULTS OF TRANSFUSION

Indication	Number of Transfusions	Number of Cases	Recoveries		Deaths	
			Bad Prognosis; Life Saved	Prognosis Not Bad	Temporary Improvement	No Improvement
Hemorrhage	38	24	15	4	2	3
Blood diseases	68	52	21	12	15	4*
Toxemias	14	14	6	0	8	0
Infections	20	15	0	3	12	0
Shock	3	3	2	0	0	1
General debility	22	20	0	7	13	0
Total	165	128	44	26	50	8

* Although one of these patients did not die, the case is grouped here because little improvement followed transfusion.

CONCLUSIONS

1. The best results of transfusion were obtained in hemorrhage, diseases of the blood, toxemias and shock. In 88 per cent. of the cases of acute hemorrhage, bleeding was stopped by one transfusion. In pernicious anemia, remissions can be initiated. Repeated transfusions frequently bring on repeated remissions. If no remission results, transfusion with a different donor should be performed. For the hemorrhage of hemophilia, transfusion is practically a specific. It is dangerous to delay too long with palliative measures if active bleeding is present. In purpura, transfusion gives only moderately good results. In the severe cases, it would seem advisable to carry out the suggestion of splenectomy with preliminary transfusions. All attempts to influence acute leukemia failed. In bleeding of the new-born, transfusion is a specific. Especially in cases of melena, temporizing by using other methods is contraindicated. The median basilic vein can be used regardless of the baby's age, and is the route of choice.

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[3] Bernheim, B. M.: Sodium Citrate Blood Transfusion: A Comparison, The Journal A. M. A., Aug. 4, 1917, p. 359.

[4] Novy, F. G., and DeKruif, P. H.: Anaphylatoxin and Anaphylaxis, The Journal A. M. A., May 26, 1917, p. 1524.

[5] Lewisohn, Richard: Med. Rec., New York, Jan. 23, 1915. Weil, Richard: Sodium Citrate in the Transfusion of Blood, The Journal A. M. A., Jan. 30, 1915, p. 425.

[6] Of all the patients in this series, eleven had febrile reactions and two had chills. In two other cases, reactions were anaphylactic in nature, while in still another in which tests had been omitted it was due to hemolysis. Reference may also be made to Libman and Ottenberg: Am. Jour. Med. Sc., 1915, **150**, 36.

[7] The figures refer to the number of patients treated by transfusion.

Transfusion, although employed in a comparatively small number of cases, has yielded encouraging results in toxemia associated with acute infections (e. g., pneumonia), toxemia of pregnancy, scurvy and shock. It seems to overcome shock if employed at the onset of the symptoms.

2. Transfusion is often of assistance in overcoming intractable suppurative processes and causing a marked increase in the vitality of the patient. In bacteremias, it has had practically no success. It is possible, however, that if immune donors were used the results might be better. Transfusion given preliminary to an operation will often so improve the patient's condition that the surgeon is justified in risking an operation. It will prolong the life of a patient suffering with a debilitating condition.

3. The syringe cannula method (requiring only one syringe) has proved a simple, efficient and dependable one for giving whole unmodified blood. The giving of unmodified blood is the method of choice when blood is required as a tissue (as in various anemias). When it is required to replenish impoverished circulation, citrated blood can serve as a substitute.

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THE BIOLOGIC CLASSIFICATION IN PNEUMOCOCCIC INFECTIONS *

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This report is a summary of our results in classifying pneumococci according to their biologic differences. The material was obtained from patients admitted to the Allegheny General Hospital and from patients in Pittsburgh and its suburbs. The technic used was identical with that developed at the Rockefeller Institute and reported by Dochez and Gillespie,[1] Cole,[2] Avery[3] and others. The pneumococci were isolated from the sputum. In many instances, blood cultures were also taken and, when other conditions were present or developed later, such as meningitis, empyema, lung abscess, acute otitis media and mastoiditis, cultures were taken from them. In several necropsies in which pneumonia was encountered, cultures were taken from the lung, the heart's blood and the obvious accompanying lesions. The purpose of these various cultures was to determine whether the cultures of pneumococci from various lesions in the body corresponded in regard to their biologic classification.

Five of the patients suffering from pneumonia of Group I were treated with the corresponding antiserum. Treatment was instituted late in four cases; one of these patients recovered. Two of the patients developed a meningitis and received the antiserum both intravenously and intrathecally. Blood cultures taken twenty-four hours after the administration of the serum were positive three times in one patient and twice in the other. Cultures of the spinal fluid after the administration of the serum were also positive. The other recovery occurred in a laboratory worker accidentally infected while working with a very virulent organism of Group I. The onset was violent; and despite a rather hopeless outlook, the disease yielded in a decisive and gratifying manner to the early administration of the antiserum.

The accompanying table shows the number of patients studied (including the subjects of twelve necropsies), the incidence of the various groups of pneumococci, the mortality, etc. Those included in the group of "unclassified, streptococcus, etc." are those in whom the pneumococcus was not obtained or identified, or those in whom the culture proved to be streptococci.

INCIDENCE AND MORTALITY OF PNEUMOCOCCI

Groups	Incidence		Number of Deaths	Mortality, per Cent.	Remarks
	Number	Per Cent.			
I	41	41.4	15	36.5	5 treated with serum (3D.-2R).
II	29	29.3	10	31.5	3 *Subgroup II*
III	6	6.0	4	66.6	2 mastoid — *recovered*
IV	23	23.2	6	26.0	
Unclassified, streptococcus, etc.	13	....	3	23.0	
Total......	112				
Total without unclassified..	99	....	35	35.3	

The incidence of the various groups of pneumococci apparently agrees quite closely with that found elsewhere (Cole[2]). There is some variation in the mortality, that in Group IV being high, but it is not great enough to preclude being evened up in a larger series.

Of ten blood cultures taken from those suffering from Group I infections, nine were positive. Of six taken in Group II, two were positive. The one taken in Group III was positive, and the three taken in Group IV were negative. Out of the nine Group I patients yielding positive blood cultures, six died, a mortality of 66.6 per cent. Three were treated with antiserum, one of whom recovered. In two patients of Group II yielding positive blood cultures, one died, and in four yielding negative cultures, three died. The one Group III patient yielding a positive blood culture died. Of the three in Group IV yielding negative cultures, one died. Of the twelve patients in all groups yielding positive blood cutures, eight died, a mortality of 66.6 per cent. Of eight cultures taken from the heart's blood at necropsy, six were positive, three of them belonging to Group I and one to each of the other three groups, and two were negative, belonging to Group II.

Cultures from ten pleural effusions yielded pneumococci classified thus: Group I, four times; Group II, four times, and Group IV, twice. Only one patient, whose infection was due to an organism of Group I, died.

In ten instances of meningitis, seven belonged to Group I, two to Group II, and one to Group IV.

From twenty-one patients, including the subjects of twelve necropsies, cultures were made from two or more sources. In all instances, the cultures of pneumococci thus obtained from each patient belonged to the same group.

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* From the William H. Singer Memorial Research Laboratory.

[1] Dochez, A. R., and Gillespie, L. J.: A Biologic Classification of Pneumococci by Means of Immunity Reactions, THE JOURNAL A. M. A., Sept. 6, 1913, p. 727.

[2] Cole, R. I.: New York Med. Jour., 1915, **101**, 1, 58.

[3] Avery, O. T.: Jour. Exper. Med., 1915, **22**, 804.

In the course of our studies we observed a recurrence, or second infection, in two patients. The one had as his first infection a member of Group IV, and the other a member of Group II. In their second attack both suffered from infections belonging to Group I. The one was exposed to an infection with a Group I organism, because on two occasions of several days' duration he had occupied a bed adjacent to a patient suffering from an infection belonging to Group I. As to a similar exposure of the other, we are not certain, though he was in the same ward with patients infected with the other groups of pneumococci. Both recovered from both attacks.

SUMMARY

The foregoing report shows that the incidence of the various groups of pneumococi occurs in a similar ratio to that in the pneumonias elsewhere. The mortality is fairly comparable. When blood cultures are taken, those yielding positive results are more serious, though one would probably obtain many more positive cultures if they were taken daily. It would seem that most of the instances of meningitis are due to organisms of Group I. When numerous cultures are taken from several sources in the patient, these cultures invariably belong to a single group.

A UNIFORM AND GENERALLY APPLICABLE SYSTEM FOR REPORTING SURGICAL END-RESULTS

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The foundation of future progress in surgery must consist largely of a comprehensive understanding of the successes and failures of the past. In view of the fact that several million operations have been performed in this country alone during recent years, we should now have abundant data about the end-results of operations frequently performed. The lack of available end-result data in many important fields of surgery is little short of amazing.

A few years ago, the medical director of one of the life insurance companies undertook to determine the insurability of persons recovering from the commoner types of surgical kidneys. Out of 100 surgeons consulted, only eight were able to furnish data of any value on the subject, and the medical director was obliged to conclude that very few surgeons could make a definite statement, based on their own work, concerning the ultimate effect of their kidney operations on the comfort and duration of life of their patients.

At the lowest estimate, between 20,000 and 30,000 operations for exophthalmic goiter have been performed in this country during the past ten years. Yet, except for some fragmentary data on the subject of the operative mortality and general trend of the end-results obtained in several clinics in which special skill has been developed in handling these cases, the surgical profession itself is in almost complete ignorance as to the actual results obtained through this large number of operations for exophthalmic goiter. During the same period, there have been several hundred thousand operations on the gallbladder and ducts; yet up to June, 1917, surgeons have had no really definite data to show the frequency of recurrences after these operations. No one knows the relative proportion of recurrences following cholecystostomy and cholecystectomy, and today the whole question of cholecystostomy versus cholecystectomy is debatable because the data to settle the question have not been collected. As a matter of fact, much of the literature of the past few years has been based on only the most meager and indefinite data. A similar lack of adequate end-result knowledge might be cited in many other fields of surgery.

Several reasons have been assigned for this lack of knowledge, such as the difficulty of keeping track of patients and the time and labor required to ascertain and record the results. My own end-result studies, carried on through a period of ten years, have convinced me that the chief reason for our present-day lack of end-result knowledge is that surgeons have not as yet devised a uniform and satisfactory system of reporting the data they have collected. Surgical literature is full of communications dealing in a general way with the subject of end-results, in which it is evident that authors possess considerable data which they despair of presenting in other than the most general terms.

Some time ago, I found that I had several thousand histories with end-result records extending over fairly adequate periods of time. But whereas these records had been collected with, let us say, one unit of energy on my part, when I came to study any one group of cases, it took several units of time and energy to put the data into form suitable for study and comparison. In some groups, it was quite impossible to classify the results according to the usual standards. Also I found that no two surgeons adopted the same standards in reporting their cases, so that it was impossible to compare small groups from different sources or to combine them into larger series, of greater statistical value.

As a rule, surgeons have attempted to state their end-results in terms such as "cured," "improved," "unimproved" or "dead." The trouble with this system is that in practice it is often quite impossible to assign a given case under any one head. As a typical example of the difficulties encountered, I will cite the following gallbladder case:

> A man, aged 45, had typical gallstone attacks for twenty-five years. A cholecystostomy was performed, Nov. 10, 1908. The ducts were free; 1,675 stones were removed from the gallbladder. Seven years after this operation, the patient told me that he had never had a symptom of his old trouble, and felt ten years younger than he did before the operation. Seven years and five months after the operation, however, he again developed gallstone colics accompanied by jaundice which increased in frequency and severity until, eight years and four months after the first operation, he was again operated on and a large stone removed from the common duct.

It is obvious that this case does not fit under the heading "cured" or, for that matter, in any other group. It is also obvious that the only way to state the end-results of the first operation in this case is to use some statistical method which will give the first operation credit for a cure extending over seven years and five months, after which there was no further benefit from this operation. Thus far, this patient's history has been traced eight years and five months, during 88 per cent. of which time he was cured by the original cholecystostomy.

Similar difficulties occur with greater or less frequency in practically all fields of surgery. In cases of exophthalmic goiter it is practically impossible to state the end-results following operations in the terms usually employed by surgeons reporting end-results. Gallbladder and kidney cases are little, if any, better, and gynecologic cases present similar difficulties. When we seek the reason for the difficulties encountered in trying to state end-results in such simple terms as "cured" and "improved," it is evident that these terms are descriptive of the relative postoperative health at a given period of time only, whereas to give a true description of the postoperative health of the patient, extending over a period of months or years, the element of time must be included in the description. It is as illogical to attempt to measure the postoperative life in terms that ignore the time factor as it would be to attempt to measure a plot of ground in terms of one dimension.

All the major difficulties of presenting the end-results disappear if we tabulate the results in terms of the periods of time for which the patients' histories have been traced after the operation, together with their state of health for the time periods. By this method, the "cured" column becomes "years cured," and the term "years" is added to the other divisions. It is also of advantage to add the headings "years operated" and "years traced," as illustrated in the accompanying table, which shows the results of tabulating 100 gallbladder cases by this method.

END-RESULTS FOLLOWING GALLBLADDER OPERATIONS

Diagnosis	Operation	Operations	Years Operated	Average Years Operated	Years Traced	Average Years Traced	Cured		Improved		Unimproved		Deaths	
							Years	Per Cent.	Years	Per Cent.	Years	Per Cent.	Years	Per Cent.
Gallstones.......	Cholecystostomy	42	190 1/12	4 6/12	121 1/12	2 9/12	87 3/12	72	23 3/12	19	7 4/12	6	3 4/12	3
Gallstones.......	Cholecystectomy	23	67 7/12	3	61 1/12	2 4/12	46 9/12	73	10 9/12	17	1 10/12	3	4 9/12	7
Cholecystitis....	Cholecystostomy	13	53 2/12	6 9/12	51	3 11/12	9 10/12	19	21 2/12	41	20	40	0	0
Cholecystitis....	Cholecystectomy	14	20 11/12	1 6/12	16 8/12	1 2/12	10 3/12	62	3 5/12	20	3	18	0	0
Common duct...	....	3	5 3/12	1 8/12	5 1/12	1 8/12	1	..	....	..	....	..	4 1/12	...
Totals........	....	100	392	3 11/12	257 11/12	2 7/12	58 6/12	60	58 6/12	22.6	32 2/12	12.4	12 2/12	5

A statistical correction should be made for the cases in which the patients die immediately after operation. As their histories are traced up to the time of death, it would be obviously unfair to give them full time in the "years dead" column. The factor for correction here is the proportion of the total postoperative time for which surgeons have been able to trace their patients. On the assumption that they have been traced 80 per cent. of the total postoperative time, a patient dying at operation five years before is given 80 per cent. of this time, or four years, in the "years dead" column.

The advantages of this system of recording end-results are quite obvious. No matter how complicated the postoperative history, it may be readily subdivided and classified into the appropriate periods. It is not necessary for the surgeon to trace each case to the time of reporting his results. If he has lost track of his patients soon after operation, this fact is clearly shown by his figures, and the value of the data may be judged accordingly. Long series of cases may be reported individually, by the use of only a line to a case, so that the postoperative histories of several hundred cases may be detailed on a page or two of a medical journal. To summarize an entire series of cases, it is only necessary to add the figures and strike the averages, and the results show at a glance the mean postoperative prognosis for the disease in question in the hands of the surgeon making the report.

The wealth of information conveyed by data summarized by this method is often surprising. For instance, a glance at the "years operated" column in the accompanying table reveals the fact that the surgeon reporting these cases did a number of cholecystostomies for noncalculous cholecystitis, but that this operation has not been popular with him in recent years. It also shows that lately he has been doing cholecystectomy in similar cases.

In conclusion, I wish to emphasize the fact that the plan for recording end-results as described in the foregoing is almost universally applicable to the summarizing of surgical end-results. If it were generally adopted by surgeons in reporting their results, then data from diverse sources would become available for the compilation of long series of cases and for the numerous comparative studies which are necessary if we are to determine the real factors making for success or failure in our work.

Illuminating Company Building.

Production of Vegetable Oils.—The war has made the production of all sorts of fats and oils highly important. Consul Charles L. Hoover at Sao Paulo, Brazil, in *Commerce Reports*, November 21, reports on the development of the vegetable oil industry in his district. Although a great deal of cotton has been raised in the state, until recently no cottonseed oil was produced, all of it used being imported from the United States. The manufacture of the oil has now begun, however, and several factories are in operation, oil of the highest quality being produced. Whereas in 1913 over 2 million pounds of oil was imported, in 1917 only two small shipments were brought in and the exports considerably exceeded the imports. Castor oil is another oil that is now being produced in that state. The castor bean grows wild and has been regarded as something of a pest, as it is hard to eradicate. Modern machinery is being bought in the United States for producing the oil in larger quantities. Linseed oil has heretofore been imported almost exclusively from England and Argentina. Preparations are now being made to produce this oil from the flaxseed, which is being extensively grown. Peanuts are also now being given attention as a source of oil. Several varieties of nuts found in the district are available for their oil. Among these are the cashew nut, the ucuba, which is said to be 60 per cent. vegetable tallow, and the babasu, which also contains 60 per cent. of oil. The babasu nut, it is said, will burn for half an hour if a match is touched to it. Its kernel is like copra, and it is excellent for soap making.

AN UNUSUAL CASE OF ACUTE MYELOGENOUS LEUKEMIA

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The acute types of leukemias are often difficult or impossible of diagnosis. The descriptions of clinical and postmortem findings in acute myelogenous leukemia especially are so rare in the available literature that it was thought for a while that this type did not exist as a pathologic entity. As the case in question was diagnosed definitely only at the postmortem, we have considered the clinical progress of this disease worthy of record.

REPORT OF CASE

History.—Mrs. J. R. H., aged 35, white, domestic, was admitted to the service of Dr. B. A. Ledbetter, Oct. 8, 1916, complaining of "sore mouth and general weakness." There was nothing of significance in the family history. The patient had measles and whooping cough in childhood and typhoid fever one year before admission. She was married and had two children, both living and apparently well. She strenuously denied miscarriages, syphilis and leukorrhea. Until four months before, the patient had been in perfect health, doing housework and suffering no discomforts. About that time she first noticed that her gums were sore and swollen. She went to a dentist and had several teeth extracted. The gums seemed to heal, only again to become inflamed in a few weeks. Since then she had been gradually getting weaker, until a few days prior to admission, when she did not have sufficient strength to leave the bed. A loss of 15 or more pounds in the last month was noted. Her appetite was poor, and her bowels fairly regular. No vomiting nor expectoration of blood occurred. There was no rise in temperature and no pain, except from the teeth, and no cough.

Physical Examination.—The patient was poorly nourished and markedly anemic. The skin was of a sallow tint, dry and inelastic. The glands of the neck were enlarged. The teeth were badly kept, sordes was present, and there was marked pyorrhea. The teeth were loose and decayed, and several were missing. The tongue was dry and coated, and the mucous membranes were markedly anemic. The throat, nose, ears and heart were negative. The lungs showed a roughened breathing at each apex, but neither râles nor dulness. The abdomen was flaccid and relaxed. A large cicatricial scar from an old burn was noticed to the right of the umbilicus. The liver was not palpable. The spleen was much enlarged, extending to the midline and nearly as low as the umbilicus, and was rather hard and firm with a fairly sharp edge. The vaginal and rectal examination revealed nothing abnormal. The extremities and reflexes were negative.

Laboratory Reports.—There was a total leukocyte count of 83,330 per cubic millimeter, and a total erythrocyte count of 2,400,000 per cubic millimeter, with a hemoglobin of 30 per cent., making a color index of 0.62. Examination of the urine revealed a trace of albumin, but sugar, indican and acetone were not present. Microscopically, many fine and coarse granular casts, and a few pus cells were found. Both the original Wassermann test and the modifications were negative. Smears from the teeth revealed the *Endamoeba buccalis* in large numbers. A roentgenogram of the chest revealed very dense glands at the lung roots, with slight infiltration of both upper lobes.

Differential Blood Count: On examining a Wright stained blood smear, we were unable to agree on the type of mononuclear cell predominating. Some of the cells resembled myelocytes and others large lymphocytes. The cell in question was about the size of a myelocyte, but it had a nucleus that nearly filled its entirety, and showed only slight tendency to transition forms, and practically none of polymorphonucleation. The cytoplasm of these cells was finely granular with a marked tendency to basophilic stain. Slides were submitted to such pathologists and hematologists as Drs. Bass, Couret, Duval, Johns, Langford and Weis. The reports were about equally divided between a diagnosis of myelogenous and acute lymphatic leukemia. By a personal letter dated October 16, to Dr. J. D. Weis, Dr. Richard C. Cabot of Boston reported as follows:

"I think the cells in your slides of blood are large lymphocytes. I do not think that they represent the older stem cells, ancestors of red cells and white cells alike, though, as you know, one often gets these stem cells in leukemia. Neither do I believe that they represent neutrophilic myelocytes of the bone marrow series. I think they are the ordinary large lymphocytes of normal blood. I believe the case is one of so-called lymphoid leukemia, without much of any anemia, apparently."

Treatment.—This consisted of stimulation with strychnin, brandy, digitalis and forced nourishment. The patient rapidly became weaker and had a temperature ranging from 99 to 100 F. October 20 (the eleventh day in the ward), we noticed that there was an enlargement of the entire superficial gland chains over the entire body, the individual glands being the size of split peas. October 22, the patient voided and defecated involuntarily and refused all nourishment, and at 4:35 a. m., October 23 (the fifteenth day after admission to the ward), the patient died.

BLOOD FINDINGS

Date	Total Erythrocytic Count	Hemoglobin	Color Index	Total Leukocytic Count	Differential White Cell Blood Count (500 Count)				
					Polymorphonuclear Neutrophils	Polymorphonuclear Eosinophils	Lymphocytes	Myeloblasts	Transitionals Myelocytes
Oct, 9, 1916	2,400,000	30	0.62	83,330	7.8	1	5.2	78.8	7.2
Oct. 14, 1916	....	..	....	217,707	9.4	0.8	3.6	75	11.2
Oct. 17, 1916	....	..	....	312,000	4	...	2	84.8	9.2
Oct. 20, 1916	1,984,000	..	....	487,000	8	1	5.2	71.2	14.6
Oct. 22, 1916	1,890,000	25	0.67	716,600	5.8	1.2	8	62	23

Necropsy Report.—The necropsy was held by Dr. C. W. Duval, Oct. 24, 1916, twenty-nine hours postmortem.

Body: The skin was of a light lemon yellow hue, especially marked on the face and neck. The anterior surface from the chin to the pubes was thickly studded with pin point and larger subcutaneous hemorrhages (petechiae). These punctate hemorrhages were most marked over the abdomen, and were bluish black on the abdomen, but of a purple hue in other locations. The superficial lymph nodes in the inguinal, axillary and cervical regions were enlarged and freely movable.

Peritoneal Cavity: The omentum was peppered with large and punctate hemorrhages. The serous covering of the viscera contained numerous petechiae, and the mesentery, more especially that of the small intestine, was diffusely hemorrhagic. There was, however, no free blood in the peritoneal cavity.

Heart: Four warty excrescences were noted on the mitral valve, the larger being approximately the size of a small almond. One of these excrescences in particular had a roughened outer surface, and in places it would appear as though bits had previously broken off.

Lungs: Both organs were voluminous and crepitant throughout.

Spleen: At the upper and lower poles, there were to be seen nodular masses that pushed out far above the general diameter of the spleen. On section, these nodules were found to be well defined areas of infarction (anemic variety). The smaller areas of infarction were surrounded by a well defined zone of hemorrhage. The spleen itself, on section, was coarsely granular and opaque (pyoid), and its surface was grayish red.

Liver: This organ was enlarged, and scattered throughout the parenchyma were numerous opaque nodules embedded in the substance, not sharply defined, and measuring from 2 to 5 cm. in diameter (*myeloid tissue*).

Pancreas: This organ was firm, distinctly lobulated, and of a lemon yellow color.

Gastro-Intestinal Tract: Throughout the entire tract the mucosa was diffusely hemorrhagic. There was, however, no free blood in the lumen. The mucosa of the ileum was dark slate gray, while the mucosa of the other portions of the small intestine was light purplish red. The lymph follicles of the intestine were somewhat enlarged.

Kidney and Bladder: The kidneys were of enormous size and pale. On section, their normal markings were poorly defined. The mucosa of the bladder revealed numerous punctate hemorrhages.

Spinal Cord: The meninges contained punctate hemorrhages.

Bone Marrow: This was taken from the middle of the femur, and it was of a chocolate brown color.

Diagnosis.—1. Anatomic: (*a*) acute myeloid leukemia; (*b*) acute ulcerative endocarditis, and (*c*) infarcts of the spleen.

2. Microscopic: (*a*) chronic interstitial and parenchymatous nephritis; (*b*) bronchopneumonia, and (*c*) typical myelogenous leukemia.

COMMENT

There could be no doubt that the diagnosis of a leukemia was correct, and with the short duration and markedly increased white cell count of 716,000 in fifteen days, a leukemia of the most acute or malignant type. At first, with such a total blood count, enlarged mediastinal glands and disputed differential blood picture, one was inclined to make a diagnosis of the lymphatic variety. Later, with the marked increase in the total white cells and the appearance of many transitional types of myelocytes, one was disposed to favor myelogenous leukemia; but the diagnosis was established definitely only by the bone marrow findings.

WEBER'S SYNDROME

WITH REPORT OF A CASE *

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Weber's syndrome means, clinically, a complete or partial paralysis of the oculomotor nerve combined with a contralateral hemiplegia. Pathologically, it signifies some lesion of one of the cerebral peduncles (the crus cerebri). The practical value of this syndrome lies in the possibility of precisely locating a brain lesion, since the presence of Weber's syndrome is a sure evidence of involvement of a portion of the brain — the peduncular region — that so far has been absolutely inaccessible to operative interference.

Weber's syndrome will be complete and pronounced when that part of the peduncle is involved which is adjacent to the oculomotor nerve, that is, the inner portion. Otherwise, the oculomotor nerve may be spared, and then, in spite of the presence of a peduncular lesion, the syndrome will be lacking and will have no value as a sign of localization. Cases of this type have been reported by Andral, and by Pepper and Packard. As a rule, however, the peduncular lesion results in both oculomotor and pyramidal tract involvement. It was described long before Weber's day. Thus, Mohr minutely reports this syndrome twenty-three years before Weber, and Green mentions it eleven years before Weber. In 1859, that is to say, four years before Weber's paper was published, Gubler, in speaking of paralysis alternans, describes a case of Luton in which a hemiplegia of the left side was associated with a right third nerve paralysis, as the result of a softening of the right cerebral peduncle. Yet none of these authors give so precise and complete a description as Weber, who in 1863 pointed out the anatomic, clinical and pathologic characteristics of a peduncular lesion, which Charcot in 1891 proposed to call the Weber syndrome. Weber's contribution was followed by a number of reports, some of which were purely clinical. In other words, they had not been substantiated by necropsies, as in Jelliffe's three cases and Zosin's case. Some of these reports represented a somewhat modified clinical picture.

To the modified type of Weber's syndrome belongs the so-called Benedikt syndrome in which the paralyzed side shows a tremor resembling that of paralysis agitans, chorea or athetosis and in which the lesion was found to be not so extensive in the peduncles as in the so-called tegmentum, the region above the latter (Canfield and Putnam, Mendel, Block and Marinesco, Charcot and Gilles de la Tourette, d'Astros, and Gierlich and Hirsch).

The study of the few pathologic reports pertaining to Weber's syndrome shows that this can be caused by softening (Mayor, Oyon, d'Astros), hemorrhages (Weber, Rickards, Leteinturier, Leube), posthemorrhagic cysts (Andral), tumors, as tubercles (Mohr, Green, Bouveret and Chapotot, Greiwe), gliomas (Sutton, Rosenthal, Pepper and Packard), sarcomas (Beck), new growths not identified (Callender, Sharkey, Touche), hydatid cysts (Du Camp), abscesses (Stiebel), and a revolver bullet (Guillain and Hauzel). Tumors were by far the most frequent cause of the peduncular lesion, especially tubercules and gliomas. A gliomatous growth was also found in the following case:

REPORT OF CASE

History.—A girl, aged 9 years, entered the Cook County Hospital, Sept. 8, 1916, in the surgical service of Dr. Morf. July 3 of the same year, that is to say, about nine weeks previously, she had suddenly been seized with vomiting, dizziness and a headache. The headache was so severe and continuous that it had caused her to cry out with pain. Two weeks after the onset of the disease, the mother noticed a drooping of the left upper eyelid which was followed six weeks later by weakness of the right arm and leg. In this condition she entered the hospital, with a ptosis of the left eyelid of seven weeks' duration, and a hemiplegia of the right side of one weeks' duration. The child had dysentery at the age of 3 and earache at the age of 4, but the mother could not tell whether there was a discharge from the ear. At the age of 7 the patient developed a kyphosis, though the records do not show its exact location. The father and mother, who are 37 and 36 years old, respectively, as well as three sisters and one brother, are all living and well.

Examination.—The left upper lid drooped, covering the major portion of the palpebral fissure. The patient could not raise it more than a quarter of an inch. The left eyeball did not move up or down or inward. The left pupil was dilated, and did not react to light or in accommodation. The left eye was turned outward, the external movements being the only ones remaining. The right corner of the mouth was slightly drooping, and the right arm and leg were totally paralyzed, revealing exaggerated reflexes as well as a positive Babinski sign, a positive Chaddock and a positive Oppenheim, but a negative Gordon reflex. The left side did not show any abnormalities. Sensibility was present on both sides. The fundi showed a bilateral papilledema. The heart, lungs, genito-urinary organs, mentality, speech, urine, spinal fluid, pulse, respiration and temperature were normal. A roentgenogram of the skull did not show the presence of a tumor.

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* Owing to lack of space, a rather complete list of references to the literature has been omitted. This will appear in the author's reprints, a copy of which will be sent by him on request.

Thus, the examination revealed an external strabismus of the left eye, a total oculomotor paralysis of the same side, a contralateral hemiplegia with exaggerated reflexes, and a bilateral papilledema. It was a typical Weber syndrome caused, we thought, by a tumor of the left cerebral peduncle. As brain tumors in children are usually tubercles, a diagnosis of tubercle of the left cerebral peduncle was made.

Operation and Necropsy.—Dr. Morf thought it advisable to reduce the intracranial pressure by an operation in the left temporal region, which was done, Sept. 30, 1916, and was followed by the death of the patient two weeks later. The postmortem examination revealed a glioma that had completely destroyed on the left side the gyrus hippocampus, the cornu ammonis, the cerebral peduncle, and the left oculomotor nerve. It spread upward, involving the region of the tegmentum and part of the optic thalamus, and invading the pons and the medulla. The tumor spared the optic chiasm, the anterior perforated space, and the hemispheres, but caused total obliteration of the third ventricle, greatly reduced in volume the aqueduct of Sylvius and the fourth ventricle, and produced an enormous dilatation of the anterior horns of the lateral ventricles. Those portions of the tumor that involved the cornu ammonis, the peduncle, the optic thalamus and the pons were exceedingly vascular and hemorrhagic, while the portions that invaded the posterior portion of the pons and the medulla were less vascular and showed an enormous number of large, well-developed glia cells. The walls of the vessels, especially in the peduncular region, appeared greatly thickened and hypertrophied, and contained few glia cells. Hemorrhagic foci were numerous, covering the entire field of vision in some specimens. Thus, the glioma was very extensive and evidently started in the hippocampal gyrus, which revealed evidences of deeper destruction than any of the regions previously mentioned, with the possible exception of the left oculomotor nerve and the left cerebral peduncle.

COMMENT

A case of this type affords excellent opportunities for studying the function of the hippocampal region, in order to discover its possible relation to the functions of taste and smell, an investigation which, unfortunately, was not made in this case. The extensive involvement of the neighboring regions, as the optic thalamus, the pons, etc., did not show any clinical symptoms that were exclusively those of a Weber syndrome. In a case of Boinet, a glioma of the optic striate region pressed on the chiasm, the optic tract, the left cerebral peduncle, and the upper third and lateral half of the pons. Clinically there was a Weber syndrome with a bilateral ophthalmoplegia and pseudobulbar paralysis. Somewhat similar cases were reported by Mingazzini. One patient showed a "perioptopeduncular" tumor of sarcomatous origin, which started from the hypophysis, secondarily involving the optic thalamus and the peduncles. The clinical picture revealed involvement of all the nerves of the base of the brain, a tendency to fall to the right, and twitchings in the left arm.

These cases demonstrate that a tumor of the peduncular region may give symptoms not exclusively confined to Weber's syndrome, if the neighboring areas are involved. Yet, in our case the clinical picture was that of a purely classical Weber syndrome in spite of the involvement of the tegmentum when, as I have previously mentioned, there should have been a Benedikt syndrome, that is to say, tremor of the paralyzed side combined with a contralateral oculomotor paralysis — symptoms which, in this case, were absent. They were also absent in the case of Greiwe, in which the tegmentum was totally destroyed by a tubercle. Another remarkable feature in our case was the patient's excellent mental condition, regardless of the fact that a large portion of the brain was totally destroyed. Absence of any mental symptoms was also observed by the majority of authors in cases of Weber's syndrome that were caused by softening or hemorrhages. In those patients in whom impairment of the intelligence was present, the symptoms could not possibly be ascribed, as d'Astros justly remarks, to the peduncular lesion itself; they should, he thinks, be ascribed rather to the accompanying cerebral arteritis or to syphilis.

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UTERINE RUPTURE FOLLOWING ANTERIOR HYSTEROTOMY

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Spontaneous intraperitoneal rupture of the uterus during labor is, very fortunately, of rare occurrence. Contrary to early teaching, it occurs most frequently in multiparas. An impaired integrity of the uterine wall from repeated pregnancies is more frequently a causative factor than obstructed labor. This may well be borne in mind as, I believe, the popular notion would lead us to suspect this calamity more particularly in the presence of obstruction.

The vulnerable scar, following a cesarean section, operates strongly as a predisposing cause of uterine rupture. Indeed, the likelihood of a tear through the old scar has found expression in the dictum, "Once a cesarean, always a cesarean."

Recently, a surgical procedure, known as anterior hysterotomy, has been brought forward as an easy, safe and sane method of inspecting the interior of the uterus. To me it seems only easy. The following case report is convincing argument in favor of "cleaning up" a miscarriage case in the old-fashioned way:

REPORT OF CASE

History.—Mrs. C., aged 23, married four years, referred by Dr. W. D. Moccabee of Cardington, had a good family history, and she had always been well until a miscarriage at three months occurred in December, 1915. At this time, that hemorrhage following fetal expulsion might be arrested, the abdomen was opened, the uterus incised, and the offending placenta removed (a cesarean operation after delivery!). Operative recovery was prompt. Eighteen months later, the patient came to labor at full term. Pelvimetry bespoke ample pelvic measurements. The wise suggestion of her physician, that she enter a hospital for confinement, was rejected. Mild labor pains appeared irregularly for about forty-eight hours, after which they did not return. I saw the patient in consultation, Jan. 28, 1917. There had been no labor pains for several hours. Dr. Moccabee stated that he suspected uterine rupture through the old scar, although the symptoms were quite atypical. The pulse was rapid, but of good volume. Gastric dilatation was in evidence. There were no fetal heart sounds. Profound shock was absent, and the patient said she felt quite well. The uterus and fetus could not be separately palpated through the abdominal wall. The patient stated that she heard something crack and felt something give way about the time her pains stopped.

She was removed to Grant Hospital, where an anesthetic (ether) was administered, and, after the uterus had been explored to verify our diagnosis, abdominal section was made. The dead baby was removed from the peritoneal cavity, hysterectomy was rapidly performed, and a quart of physiologic sodium chlorid solution administered intravenously. An uninterrupted recovery supervened.

Specimen.—Examination of the uterus revealed that it had yielded at the old hysterotomy scar. This was not remarkable for however carefully the incised uterine wall may have been repaired, Nature frowned on the job. Muscular union was all but nil, the infolding endometrium approximating the peritoneum—an ugly rent, indeed.

SUMMARY

1. Anterior hysterotomy, in a child-bearing woman, is not an innocent procedure.
2. When uterine rupture occurs through scar tissue, prognosis is more favorable because there is less likelihood of severe hemorrhage.
3. The vulnerability of a cesarean scar makes it desirable for such patients to enter a well-equipped hospital for all future deliveries.

350 East State Street.

FROSTBITE AS A PREDISPOSING FACTOR IN CARCINOMA OF THE EAR

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Pusey has called attention to the important part played by long standing, dry seborrhea in the production of senile keratoses and similar precancerous lesions of the skin, and Heidingsfeld has shown that cicatricial tissue frequently serves as a starting point for cutaneous carcinoma.

The fact that areas of skin that have been subjected to frostbite, and especially to repeated frostbite, are abnormally susceptible to cancerous involvement has not, however, been sufficiently emphasized. The parts commonly involved are the ears, particularly the helixes, and the cheeks. The great frequency with which these areas are attacked can be appreciated only by a study of a considerable number of case histories. Of forty-six cases of seborrheic keratosis involving the ears and cheeks, examined during the twelve months elapsing Nov. 1, 1917, twenty-seven gave a history of frostbite. Of the twenty-seven, twenty-one presented one or more malignant growths on the affected areas. The majority of the seborrheic keratoses were of the keratoid type. Almost 90 per cent. of the carcinomas were of the basal cell variety. In three instances both the basal and squamous cell varieties were represented.

Judging from the result of my own observations, it appears that repeated exposure to very low temperatures tends also to reduce local resistance to the progress of the malignant growth, and thus becomes a factor in prognosis as well as in etiology.

The most important prophylactic measure is, of course, adequate protection of the parts commonly attacked. Should keratoses develop, the frequent application of an ointment containing small amounts (from 1 to 5 per cent.) of salicylic acid may be tried. In some instances, double this proportion of sulphur may also be advantageously added. In more advanced cases, suspiciously or frankly malignant, radium usually serves admirably, and possesses the great advantage of leaving the skin in a practically normal condition.

In attacking squamous cell growths of the ear, and especially if the associated lymph nodes are involved, radical excision is, in my experience, the method of choice.

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A STATISTICAL STUDY OF LEPROSY IN THE PHILIPPINE ISLANDS

FROM THE HISTORIES OF TEN THOUSAND CASES ISOLATED IN THE CULION LEPER COLONY

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On the theory that facts of interest and of possible bearing on the transmission of leprosy might be obtained from a study of the personal histories of a large number of lepers, an investigation has been made of the "individual records" of each leper on his admission to the Culion Leper Colony.

The histories, which, of necessity, are very brief, contain, in addition to the name of the individual, the age, sex, nationality, race, birthplace, last place of residence, date of admission to the colony, marital relation, family contact history, probable duration of the disease, and a brief description of the physical condition of the patient at the time of admission.

TABLE 1.—AGE AT WHICH INFECTION IS ASSUMED TO HAVE TAKEN PLACE

Culion			Hawaii			
Ages	Number	Per Cent.	Ages	Number	Total	Per Cent.
1- 5	70	0.72	1- 5	8	8	0.75
			6-10	56		
6-15	2,335	24.30	11-15	163	219	20.69
			16-20	204		
			21-25	143		
			26-30	114		
16-35	4,888	50.87	31-35	79	540	51.04
			36-40	89		
			41-45	44		
			46-50	48		
			51-55	41		
			56-60	26		
			61-65	18		
			66-70	18		
			71-75	3		
			76-80	3		
36 upwards	2,316	24.10	81-85	1	291	27.50
Totals....	9,609	99.99			1,058	99.98
Not estimated...	816				2	
	10,425				1,060	

Since a large number of the lepers of the Philippine Islands have only a slight knowledge of the simplest principles of hygiene and sanitation, questions regarding their views of the possible source of their infection bring little, if any, information worthy of serious consideration.

Since we lack exact knowledge of the method of transmission of the disease, exact knowledge of the time at which infection takes place would be of great value in the study of individual cases. Table 1, showing the ages at which infection is assumed to have taken place, is only relatively correct, since the period of incubation of leprosy is unknown and therefore has not been considered. The figures are based on the time at which the first symptom of the disease was recognized.

The remarkable similarity between these figures and those obtained by McCoy[1] in the Hawaiian Islands warrants their comparison at this point. The ages obtained from the Hawaiian statistics, it should be noted, are reckoned from the time of apprehension and not from the approximate date of infection.

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[1] McCoy: A Statistical Study of Leprosy in Hawaii, Pub. Health Bull. 66, 1914.

Twenty-nine per cent. of the lepers segregated in Culion have given a definite history of previous contact with at least one leper relative. This percentage excludes a large margin of error, since it is a frequent occurrence for a leper on admission to give a negative family contact history. Then months or years later, a brother, sister, cousin or some other relative may be admitted as a leper in whom the existence of the disease was not suspected when the first relative was isolated.

In a study of the lepers giving a history of contact with only one leper relative, there were found certain significant facts about the distribution of the infection among the members of the families. They appear in Table 2.

TABLE 2.—DISTRIBUTION OF LEPROSY AMONG MEMBERS OF FAMILIES

Relative Who Had Leprosy	Lepers	
	No.	Per Cent.
Mother	106	4.77
Father	145	6.53
Son	113	5.09
Daughter	58	2.61
Brother	546	24.57
Sister	245	11.02
Nephew	85	3.82
Niece	44	1.98
Aunt	79	3.55
Uncle	130	5.85
Wife	17	0.75
Husband*	23	1.03
Grandfather	5	0.22
Grandmother	6	0.27
Grandson	12	0.54
Granddaughter	5	0.22
Son-in-law	1	0.04
Cousin	602	27.05
Total	2,222	99.92

* As has already been explained, there is a definite and unavoidable error in these figures. Since they are based on the records of lepers isolated in Culion only, no allowance has been made for the leper relatives remaining alive or dead in the provinces. For example, seventeen wives and twenty-three husbands were lepers, the unaccounted-for wives dying before their husbands were isolated in Culion.

If these cases are viewed from another standpoint to show a possible relationship between sexes, the data given in Tables 3 and 4 are obtained.

TABLE 3.—CONTACT BETWEEN LIKE SEXES

Persons Infected	No.	Per Cent.
Mother and daughter	81	4.48
Father and son	165	9.12
Brother and brother	398	22.00
Sister and sister	124	6.85
Uncle and nephew	144	7.96
Aunt and niece	60	3.32
Grandfather and grandson	9	0.49
Grandmother and granddaughter	6	0.33
Cousins, like sexes	117	6.47
Total, like sexes	1,104	61.02

TABLE 4.—CONTACT BETWEEN UNLIKE SEXES

Persons Infected	No.	Per Cent.
Mother and son	106	5.85
Father and daughter	70	3.87
Brother and sister	269	14.87
Uncle and niece	60	3.32
Aunt and nephew	74	4.09
Grandfather and granddaughter	3	0.17
Grandmother and grandson	10	0.55
Cousins, unlike sexes	72	3.97
Husband and wife	40	2.21
Son-in-law (and mother-in-law)	1	0.05
Total, unlike sexes	705	38.95
Cousins, sex contrast not known	413	
Final total	2,222	

If we assume, in these instances, that the disease has been transferred from leper to relative, nearly two thirds of the cases, exclusive of the cousins whose records failed to show the sex of the other infected cousin, are between relatives of like sexes. Notable is the record of contact among brothers and among sisters, which shows 522 cases of the disease transferred presumably from brother to brother and from sister to sister, in contrast to 269 cases of assumed transmission from brother to sister, or vice versa.

Rearranging these tables in order that a comparison may be made with somewhat similar statistics from Hawaii, and abridging the Hawaiian table to show family contacts only, we obtain the data given in Table 5.

TABLE 5.—COMPARISON OF LEPROSY AMONG RELATIVES IN CULION AND HAWAII*

	Culion		Hawaii	
	No.	Per Cent.	No.	Per Cent.
Fathers or mothers	251	11.30	117	37.02
Grandparents	11	0.49	6	1.89
Grandchildren	17	0.77	1	0.31
Sisters or brothers	791	35.61	102	32.27
Sons or daughters	171	7.69	12	3.79
Uncles or aunts	209	9.41	24	7.59
Cousins	602	27.10	18	5.69
Nephews or nieces	129	5.80	8	2.53
Husbands or wives	40	1.80	28	8.85
Totals	2,221	99.97	316	99.94

* The percentages are not from the original but are here calculated for convenience. The figures are subject to the error explained in the footnote to Table 2.

In addition to the lepers giving histories of contact with one leper relative, there were 182 families in which occurred infection of three or more members, distributed as shown in Table 6.

TABLE 6.—DISTRIBUTION OF FAMILIES IN WHICH LEPROSY OCCURRED IN THREE OR MORE MEMBERS

Members of One Family Infected	No. of Instances
8	1
7	2
6	5
5	9
4	35
3	130

The distribution of infection among the members of the individual families is shown in Table 7, from which it will be seen that the most frequent cases of infection among relatives were among three cousins, this combination being recorded twenty-seven times. More than half of the individuals infected were brothers and sisters, of whom 130 gave histories of contact with ninety-seven leper parents or grandparents, while 196 brothers and sisters gave no history of contact with leper parents or grandparents. Eighty-five cousins gave histories of contact with leper cousins only.

Of the 10,425 lepers admitted to Culion, 3,674, or 34 per cent., were married before admission. Of the latter number only forty, or 1 per cent., represent instances in which both husband and wife were known to be lepers.

The distribution of the disease among the tribes is given in Table 8.

In the Philippine Islands, as elsewhere, leprosy more frequently affects the male than the female. Of those segregated in Culion, 66.7 per cent. have been of the male sex.

The admission records show that the attempt to separate the cases into types of disease has proved unsatisfactory, as some of the cases have been classified as "anesthetic" or "tubercular" from the most pronounced symptom only, while the description of the cases show them to be, in some cases, "mixed." The larger majority of the cases, however, have been "tubercular" or "nodular," with the "mixed" cases coming second in point of numbers.

According to computations from records of 5,000 consecutive deaths, the average duration of leprosy, that is to say, the period existing between the time of recognition of the first symptom of the disease, and death, is 7.332 years. The longest duration of the disease of which authentic record was found is forty-eight years, the patient being a woman of 63 now living, who has spent eight years in Culion.

TABLE 7.—INFECTION AMONG MEMBERS OF INDIVIDUAL FAMILIES

No. of Families Thus Infected	Members Infected											Total Relatives Infected in One Family
	Grandfather	Grandmother	Father	Mother	Uncle	Aunt	Brother	Sister	Nephew	Niece	Cousin	
1	....	1	....	1	....	...	3	1	...	...	2	8
1	....	....	....	....	....	...	4	3	...	...	...	7
1	....	....	1	....	1	1	2	2	...	...	...	7
1	....	....	1	1	....	...	3	1	...	...	...	6
1	....	....	....	1	....	...	1	3	...	...	1	6
1	1	....	1	1	1	...	1	1	...	...	...	6
1	....	....	....	....	....	...	3	1	...	...	2	6
1	....	....	1	....	1	...	2	1	...	...	1	6
3	....	....	....	....	....	...	2	3	...	...	...	5
2	....	....	....	....	....	...	2	1	...	...	2	5
1	....	....	....	....	1	...	3	1	...	...	...	5
1	1	....	1	1	....	...	1	1	...	...	...	5
1	....	....	....	1	....	...	1	1	2	...	...	5
1	....	....	1	....	....	...	2	2	...	...	...	5
6	....	....	....	....	....	...	2	2	...	...	...	4
3	....	....	....	....	1	...	1	2	...	...	...	4
2	....	....	....	....	....	...	3	...	...	...	1	4
2	....	....	1	....	1	...	1	1	...	...	...	4
2	1	....	1	....	1	...	1	...	...	...	...	4
2	....	....	1	1	....	...	2	...	...	...	...	4
1	....	....	....	....	1	...	1	1	...	...	1	4
1	....	....	1	....	....	...	3	...	...	...	...	4
1	....	....	....	1	....	...	1	1	...	...	1	4
1	....	....	....	1	....	...	3	...	...	...	...	4
1	....	....	1	....	....	...	1	...	...	...	2	4
1	1	....	1	....	....	...	2	...	...	...	...	4
1	....	....	1	....	1	...	...	1	...	...	1	4
1	....	....	....	....	....	...	3	1	...	...	...	4
1	....	....	....	....	....	...	2	...	...	...	2	4
1	....	....	1	1	....	1	...	1	...	...	...	4
1	....	....	....	1	2	...	1	...	...	...	...	4
1	....	....	....	....	....	...	...	...	...	...	4	4
1	....	....	1	....	....	...	2	1	...	...	...	4
1	1	....	1	....	1	...	...	1	...	...	...	4
1	....	....	....	....	1	...	...	2	...	...	1	4
1	....	....	....	1	....	1	...	1	...	...	1	4
1	....	....	....	....	....	...	...	3	...	...	1	4
1	....	....	1	....	....	...	2	...	...	1	...	4
27	....	....	....	....	....	...	...	...	...	...	3	3
11	....	....	1	....	....	...	2	...	...	...	...	3
9	....	....	....	....	....	...	3	...	...	...	...	3
8	....	....	....	....	1	...	1	1	...	...	...	3
6	....	....	....	....	....	...	1	2	...	...	...	3
5	....	....	....	....	....	...	2	...	...	...	1	3
4	....	....	4	....	....	...	1	1	...	...	...	3
4	....	....	....	....	....	...	2	1	...	...	...	3
4	....	....	....	1	....	...	1	1	...	...	...	3
3	....	....	1	....	....	...	1	...	...	...	1	3
3	....	....	....	....	1	...	...	...	1	...	1	3
3	....	....	....	1	1	...	1	...	...	...	...	3
3	....	....	....	1	....	...	...	1	...	...	1	3
3	....	....	....	1	....	...	1	...	...	...	1	3
2	....	....	1	....	1	...	1	...	...	...	...	3
3	....	....	....	....	1	...	2	...	...	...	...	3
2	....	....	....	....	....	1	1	1	...	...	...	3
2	....	....	....	....	....	...	...	2	...	...	1	3
2	....	....	....	....	....	...	1	1	...	...	1	3
2	....	....	1	....	....	1	...	1	...	...	...	3
2	....	....	1	....	....	...	...	1	...	...	1	3
2	....	....	1	1	....	...	1	...	...	...	...	3
2	....	....	1	1	....	...	...	1	...	...	...	3
2	....	....	....	1	....	...	2	...	...	...	...	3
2	....	....	1	....	....	...	1	...	...	...	1	3
2	....	1	1	....	....	...	1	...	...	...	...	3
1	....	....	1	1	....	...	...	...	...	...	1	3
1	....	....	....	....	....	1	...	...	...	1	1	3
1	....	....	....	....	....	...	...	3	...	...	...	3
1	1	....	....	....	....	...	1	1	...	...	...	3
1	....	....	....	1	....	...	...	2	...	...	...	3
1	....	....	1	....	....	...	...	2	...	...	...	3
1	....	....	1	....	....	...	...	1	...	1	...	3
1	....	....	....	....	1	...	...	2	...	...	...	3
1	....	....	1	1	....	...	...	...	1	...	...	3
1	....	....	....	....	....	1	...	...	1	...	1	3
1	....	....	....	....	....	...	2	...	...	...	1	3
	7	2	56	35	37	10	207	125	7	4	137	
	Total Members Infected, 627											

In the ten years since the beginning of segregation of lepers in the Philippine Islands, 357 babies in Culion have been born of leper parents. Of these, 166, or 46.5 per cent., have died, twenty-four, or 6.7 per cent., being stillborn, fifty-nine, or 16.5 per cent., dying before reaching the age of 1 month, forty, or 11.2 per cent., dying before reaching the age of 3 months, and the remainder of the 166 living less than three years.

Thirty-seven of the 357 babies were released from Culion at early ages, after they had been examined clinically and bacterioscopically and had been reported not to be lepers. One of these was returned to the colony at the age of 4 years as a leper. Of the remaining thirty-six, little is known save that several died during an epidemic of bacillary dysentery in the institution in which they were temporarily placed.

Each of the 154 children remaining in Culion has been examined repeatedly both clinically and bacterioscopically. Sixteen, or 10.4 per cent., are lepers.

On several occasions, when lepers in the provinces were collected for segregation, leper mothers were found who could make no arrangements for the care of their babies, in which cases the infants were brought to Culion. Of nine of these children isolated with their mothers, three have died, one has been returned to the provinces, and five remain in Culion. Four out of these five are lepers, having been exposed to infection for from seven to ten years.

TABLE 8.—DISTRIBUTION OF LEPROSY AMONG TRIBES

Tribes	No.	Approximate Percentage of the Tribe Population
Visayans	5,338	0.17
Tagalogs	1,997	0.14
Ilocanos	1,547	0.19
Bicolanos	1,184	0.21
Pampangos	171	0.06
Pangasinans	100	0.01
Members of small tribes and foreigners	88	
	10,425	

COMMENT

Granting that the *Bacillus leprae* Hansen, or the *Mycobacterium leprae*, is the causative agent of leprosy, and that no organism can arise de novo, the conclusion is drawn that the disease leprosy arises in an individual as the result of heredity or contagion. The word "contagion" is here used in its broad sense as the transmission of a disease from one person to another by direct or indirect contact.

It is acknowledged, in a scientific sense, that no parasitic disease can be inherited, although infection of the ovum or spermatozoon is possible, as well as a hereditary predisposition to leprosy. The fact, however, that 71 per cent. of the lepers segregated in the Culion Leper Colony came from families in which there was only one case of leprosy recognized, and that only a small proportion of the remaining 29 per cent. represent contact between parent and child, would tend to confirm the already firm belief that heredity plays an unimportant rôle in the transmission of leprosy.

It is to be regretted that, in the study of the histories of the 10,425 patients admitted to the Culion Leper Colony, no facts were found which furnished conclusive evidence on the transmission of the disease. It is interesting, however, to consider inversely the relation of certain of the facts obtained and the now considered theories of the transmission of leprosy.

Hansen is said to have remarked, "There is hardly anything on earth, or between it and heaven, which has not been regarded as the cause of leprosy." While the mystery of the etiology of the disease has been solved by Hansen, practically every thing and condition has since been considered in an effort to demonstrate the transmitting agent.

Climatology.—Nothing obtained from this study has demonstrated that the local climatic conditions either predispose to the disease or directly affect the transmission.

Local Geographic Distribution.—While the great majority of the lepers have come from the seacoast, it must be understood that the population of the Philippine Islands is, to a large extent, distributed along the seacoast. The mountain tribes, in spite of their relative inaccessibility, are not free from the disease, several of them being represented in the colony.

Air and Dust.—While the histories taken do not consider the possibility of transmission by air and dust, it is not without significance that in the ten years since the opening of the Culion Leper Colony, only two employees of the colony have developed the disease. One of these is a Caucasian ecclesiastic who was pronounced a leper after five years of exposure, and the other, a Filipino laborer who was pronounced a leper at the end of a year's employment in the colony. The latter patient comes from an infected family, having a cousin who was a leper for several years previous to the laborer's isolation. The average number of nonleprous employees in the colony is 200, nearly thirty of whom have been on the reservation for ten years.

Food.—Rice and fish comprise a large proportion of the Filipino diet. As each member of the family partakes of a fare almost exactly similar to that of the other members, it is difficult to conceive of how one might be infected to the exclusion of other members of a frequently large family. It is therefore negatively concluded that neither the native diet, nor any particular article of food has any relation to the transmission of leprosy, aside from the general predisposition to disease which may accompany the ill-nourished condition of the bodies of many Filipinos.

Sexual Transmission.—The fact that but 1 per cent. of the consorts of married lepers have developed the disease would tend to show that the sexual act, as such, has little, if any, bearing on the tranmission of leprosy.

By consideration, largely with negative statements, there have been eliminated from this discussion some of the more generally considered possible means of transmission of leprosy. There remain for consideration transmission through physical contact and through secondary parasites.

Physical Contact.—The large proportion of the cases of infection which have presumably been transmitted among brothers and sisters, or among cousins, would suggest physical contact as an important factor in the transmission of the disease. On the contrary, the relatively small percentage of transmission between parent and child, or the smaller percentage between husband and wife would suggest that even prolonged and intimate contact alone is not sufficient.

Secondary Parasites.—The bacillus of leprosy has, of itself, no known powers of penetration. It is therefore reasonable to believe that should it be transferred from person to person by a secondary parasite, this parasite must habitually implant the bacillus in a suitable place. One is then forced to exclude all parasites having no powers to penetrate the human skin, which is the part most likely to be habitually attacked.

The mosquito is physically capable of transplanting the bacillus of leprosy beneath the human skin. There is, however, nothing in the life history of the mosquito to lead one to suspect that it would bite and infect with leprosy one member of the family, to the frequent exclusion of all others, or to select and infect brothers and sisters to the exclusion of other relatives. Nor does anything in the life history of the mosquito explain the presumed transmission of the infection between like sexes. By similar reasoning, flies, ticks, lice and bedbugs may be excluded as probable agents of transmission, provided each member of a household is similarly exposed to infestation.

The theoretically ideal transmitting agent, then, must have the ability to penetrate the human skin, to select by preference certain members of the family, brothers, sisters or cousins, and to transplant the bacillus preferably from one sex to a like sex. It also includes the element of physical contact.

CONCLUSIONS

1. One half of the cases of leprosy segregated in Culion have been diagnosed in adolescence.
2. Twenty-nine per cent. of the lepers gave definite histories of contact with leper relatives. No record has been made of contact with lepers other than relatives. It is probable that carefully taken histories would have revealed contact histories for all the lepers isolated, since the disease is widespread throughout the islands.
3. Thirty-five per cent. of those giving histories of contact with a single leper relative were sisters and brothers, 27 per cent. were cousins, while 11 per cent. were leper children and 7 per cent. leper parents.
4. In the occurrence of infection of two or more relatives, the majority of cases were among members of like sexes, the noteworthy exception being the number of mothers and sons infected in excess of the number of mothers and daughters.
5. Numerous records show multiple infection within families, spreading over one, two or three generations, more than half of the infected persons being brothers and sisters.
6. In 1 per cent. of the lepers who were married before admission to Culion, the infection was between husband and wife.
7. The male sex is more frequently infected.
8. The average duration of leprosy is 7.3 years.
9. Mortality among children born of leper parents is high. The incidence of infection among children living in the colony for from one to ten years is 10.4 per cent.
10. Infection of children born of parents, one of whom is a leper, and living among lepers for from seven to ten years, is 44 per cent.
11. From this study, nothing of importance, other than circumstantial evidence, has been learned regarding the transmission of leprosy.

Additions to Registration Area.—Maryland, Virginia and Kentucky have recently been added to the list of states in the Registration Area for births of the United States. Conscription and enlistment in the Army have shown the need for accurate birth statistics and have stimulated interest in this important matter. Tests by agents of the U. S. Census Bureau of the completeness of birth registration in Virginia and Kentucky gave a rating of over 90 per cent., which is the figure required for registration. Similar tests are being made in Indiana and New Jersey, with North Carolina, Ohio and Utah to follow, and within the next two years it is expected that the Registration Area will comprise at least two thirds of the population of the United States.

LEIOMYOMA OF THE APPENDIX

REPORT OF TWO CASES

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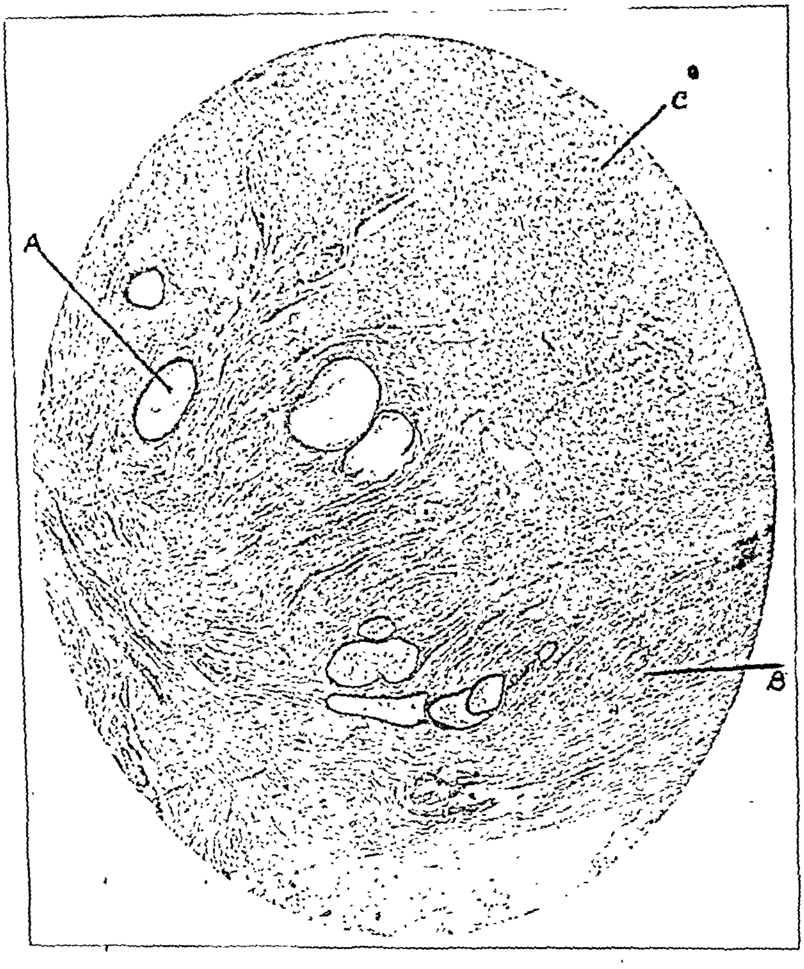
Both of these tumors were discovered in the course of a routine pathologic examination of the surgical specimens. In neither case was there any clinical evidence indicating or suggesting their presence.

REPORT OF CASES

Case 1 (C-1184).—*Clinical Data.*—Mrs. S. B., aged 40, was admitted with symptoms of general pelvic inflammation. Operation was performed the day following admittance, consisting of removal of the uterus, both tubes, one ovary, and the appendix. Recovery was uneventful.

Surgical Findings.—The uterus was distorted by the presence of many fibroids of all varieties, extending from the fundus to the cervix. The lumen was partially occluded by submucous fibroids and blood clot. Both tubes were swollen, the distal ends closed. The ovaries were cystic. The appendix was small. The distal end was kinked, the color, normal. The lumen was obliterated.

Pathologic Findings.—There were multiple fibromas of the uterus. No endometrium was seen. The tubes showed moderate chronic inflammatory reaction. Many small round cells were noted. The ovary was very fibrous, with numerous cysts. The lumen of the appendix had been entirely obliterated. The muscular coats showed some fibrosis, moderate in amount. There had been marked proliferation of the muscle tissue. This growth had progressed to the extent of obliterating the lumen. The mucosa had apparently suffered pressure atrophy to the extent shown in the illustration, except in isolated areas where it still persisted as the lining wall of small cysts.



Leiomyoma of appendix: *A*, remains of mucosa; *B*, muscle wall; *C*, tumor mass. Notice the arrangement of nuclei of the tumor, like columns of troops.

Case 2 (SA-2610).—*Clinical Data.*—Mrs. A. G., aged 36, was admitted complaining of pain in the right lower quadrant, of five months' duration. The onset was not acute. Recently, there had been pain in the left lower quadrant; menstruation was irregular; leukorrhea was present; there had been no pregnancies. Operation was followed by uneventful recovery.

Surgical Findings.—The uterus was normal in size and consistency, but was held downward, backward, and to the left by firm adhesions. The left tube was partially adherent to the back of the uterus, and was not enlarged or diseased. The right tube and both ovaries apparently were normal. The appendix was found to be surrounded by many firm adhesions. It was enlarged, angulated 3 cm. from the tip, and the distal portion for about 1 cm. was constricted, firm, and paler than normal. On the opening of the peritoneal cavity through a median incision, the entire abdominal contents were found to be covered by a transparent, membranous veil, making it appear as though all the viscera were retroperitoneal.

Pathologic Findings.—Only the appendix was removed. This measured 3.5 cm. in length, by 0.75 cm. in diameter. The serous surface was grayish pink. The proximal end showed a patent lumen, partially necrotic, and sloughed mucosa, the submucosa heavily fibrosed, and showed many small round cells throughout, some thickening of the muscularis, and slight fibrosis of the serosa.

At the distal end there were observable some remains of the original muscularis as such, but this had hypertrophied so that the mass of muscle tissue completely filled and obliterated the lumen. Van Gieson's stain revealed some fibrous growth, but the large bulk of the obliterating mass was smooth muscle tissue. The mucosa was not observed, and had probably undergone complete atrophy. The serosa was normal.

SUMMARY

Both patients were women, aged 36 and 40, respectively. The presence of uterine fibromas was noted in one, but not ascertained in the other. Both appendixes were removed, one as a routine surgical procedure, the other on clinical evidence of chronic inflammation. Microscopically both appendixes showed evidence of chronic inflammation of long standing, and in both the seat of the tumor mass was in the extreme distal end. The pseudo-adenomatous condition of the one is interpreted as an intermediate stage in a process affecting the mucosa, and one which has gone on to complete obliteration in the other.

Ancient Prescribing.—Ancient Greek prescriptions were of a curious character, according to our present ideas. For instance, they directed that no medicine should be administered to a sick cow by a woman; they lauded cabbage as a cure for almost every ill; placed great stress on the number 3 and supposed medicines to be more active when 3 drams, 3 ounces or 3 times any quantity was given, and they at the same time directed the repetition of cabalistic words and incantations.—Wall, *The Prescription.*

BRACHIAL NEURITIS AND SCIATICA

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A misapprehension as to the frequency of brachial neuritis and of sciatic neuritis or sciatica I believe to be quite general. At any rate, I do know that in the profession at large, as I meet it, the diagnosis of these diseases is made altogether too frequently.

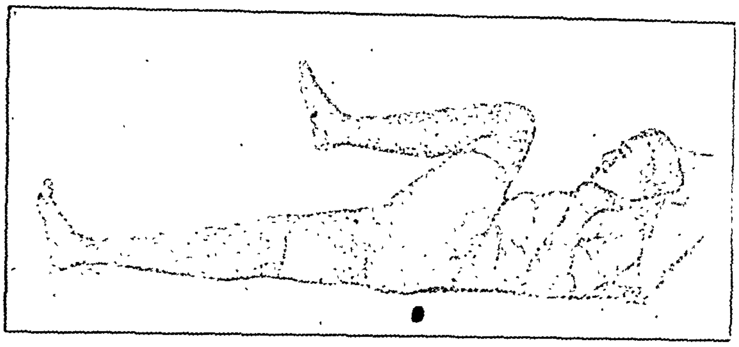

Fig. 1 (Case 1).—Arthritic side, showing free flexion of thigh.

BRACHIAL NEURITIS AND SHOULDER ARTHRITIS

A careful review of my records (private practice) for the last ten years shows that, of the patients referred to me supposedly with brachial neuritis, only about one in ten really had it. Approximately four fifths were cases of arthritis of the shoulder joint. The other one tenth was made up of cases of bursitis, syphilis, neoplasm, cervical rib, postherpetic pain, osteomyelitis, cervical caries and cervical arthritis. Indeed, when a patient states that he has for some time been troubled with neuritis of the shoulder or arm, one is pretty safe in assuming that it is something else, probably arthritis.

Why should so many physicians have made an erroneous diagnosis of brachial neuritis? Principally, I think, on account of the relative prominence of pain, because this pain was not distinctly localized in the shoulder joint and probably because they did not sufficiently examine the patient: A careful examination seldom leaves one in doubt.

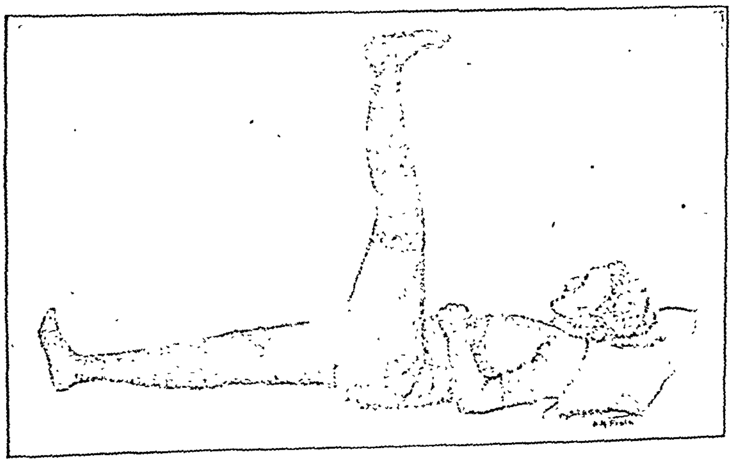

Fig. 2 (Case 1).—Arthritic side; no Lasègue sign.

Neuritis is rare; the pain is constant, is influenced not at all or but little by passive movement of the shoulder, and is generally influenced not greatly by active movement, though the patient moves the arm carefully. Ordinarily, the suffering is intense, such as never occurs in arthritis except in the worst cases, when the patient cannot move the joint at all. Intermittent, grumbling pain is very, very rarely that of neuritis. There is distinct, generally exquisite, tenderness of the cords of the brachial plexus or of the nerve trunks or of both. In some cases there is distinct though slight tactile anesthesia and sometimes surface hyperesthesia—more properly speaking hyperalgesia. Tingling or subjective numbness of fingers or forearm is frequent. The deep reflexes of the arm are diminished or lost. The disease is nearly always self limited. It lasts a few weeks or a few months (in bad cases from six to nine months), there is definite recovery, and it seldoms recurs.

Arthritis of the shoulder, on the other hand, is very common, and the pain fluctuates more or less, even when very bad. In the less severe cases it is intermittent. Not only is it intermittent within the twenty-four hours, but the patient has his good and his bad days. Often the pain seems to be influenced by the weather, and for some reason it is apt to be more annoying at night. As before stated, often the pain is not distinctly localized in the shoulder joint. In a great many cases it is felt chiefly *at about the insertion of the deltoid*. For this I have no adequate explanation, but I know that it is very misleading. More than once I have known it to lead to a diagnosis of osteomyelitis. Sometimes the pain is rather diffuse, radiating up into the neck and down the arm. This pain in the neck and down the arm I am quite sure is often due to concomitant arthritis of the cervical spine, the nerve roots being irritated where they pass out through the intervertebral foramina. In some cases of shoulder arthritis alone I have no doubt that the nerve trunks may be involved where they pass close to the joint.

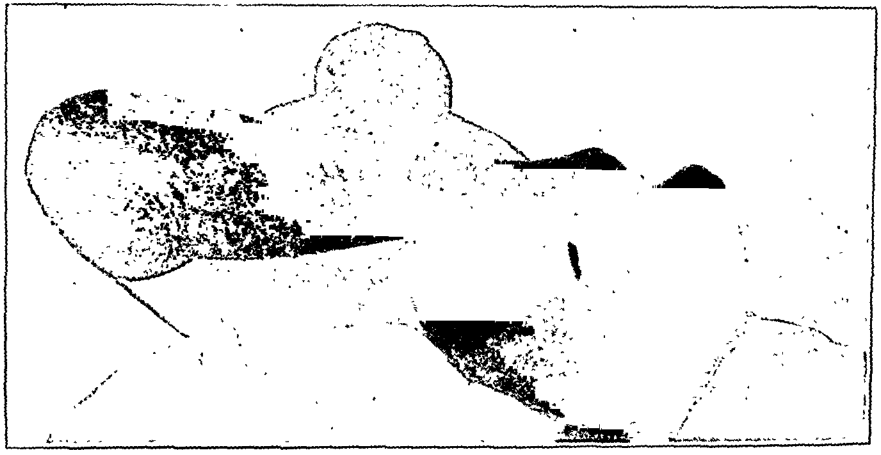

Fig. 3 (Case 1).—Normal side; leg alm ost horizontal; that is, no fabere sign.

The striking feature, however, of the arthritis cases is that in whatever part the pain may be felt, there are certain movements of the shoulder joint, active or passive, which cause pain. These are by no means always the same; but by all odds the most frequent is adduction of the humerus with retraction and internal rotation, the movement involved in crossing the forearms behind the back. Consequently the woman has difficulty in fastening her skirts and her waist behind, and the man in putting his hand into his hip pocket. Another good test movement is to extend the arm straight upward and then rotate it as if operating a screw driver. In the examination of such a case, movements in different directions, with the arms in different positions, should be carried out against resistance. For instance, with the arms extended horizontally and parallel in front of the upright trunk, the hands are pushed toward each other, away from each other, upward and downward *against resistance*. With the arms extended sidewise, making a cross with the body, resistance movements are made upward, downward, forward and back, etc. One or more of these movements will be pretty sure to be painful, which would not be the case in mild neuritis. But it must be emphasized that in many cases of subacute and chronic arthritis, many movements or most movements are entirely painless. I have had a number of patients who could play golf with perfect freedom; and such exercises as hammering, sawing, rowing and sweeping may have no immediate influence on the pain. Likewise, in the chronic or subacute cases, local tenderness may be but slight or even absent. Of course in acute arthritis practically all movements of the joint are painful, and there is limitation of passive motion, neither of which conditions obtains in neuritis.

Of very considerable assistance in the diagnosis is the state of the deep reflexes. These are uniformly brisk, and sometimes considerably exaggerated. Even when the muscles are quite atrophic and the appearance of the arm would indicate loss of the deep reflexes, the wrist jerk and triceps jerk will be found to be quite lively, more so than those of the well side. The same, as a rule, applies to the scapular jerks.

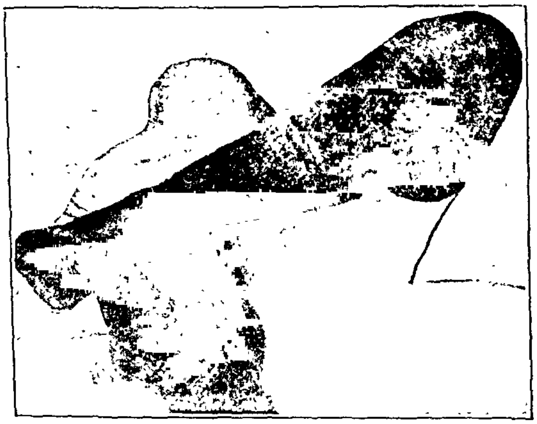
Fig. 4 (Case 1).—Arthritic side; knee cannot be normally depressed: fabere sign.

Wasting of shoulder and arm muscles sometimes leads the observer astray. There seems to be a common feeling that atrophy means nerve trouble. Consequently wasted deltoid, biceps and triceps apparently lend color to the view that the shoulder pain is neuritic. Just how arthritis causes atrophy of muscles moving the affected joint is still matter for speculation; but the fact of its general presence is of daily observation. The atrophy may be very marked and the arthritis relatively mild. I once saw a boy with mild multiple arthritis in whom the muscular wasting was so obtrusive that the case was thought to be one of advanced progressive muscular atrophy. Indeed, I have known men high in the profession to be misled by this arthritic atrophy.

There are two more signs of value: signs, I regret to say, that seem to be infrequently looked for. These are fever and leukocytosis. In very mild and chronic cases they may not be found, but such are exceptional. Repeated examinations, especially when the pain is at its worst, will nearly always show at one time or another (sometimes uniformly) a slight rise of temperature (from 99 to 100 F.) and a slight increase in the leukocyte count (from 8,000 to 9,000 or 10,000, occasionally 12,000). These two signs naturally lead us toward the conclusion that the arthritis is of infectious origin, and this conclusion is supported by the fact that less obtrusive arthritis elsewhere can often be found. Even when the patient avers that he has no other trouble, painstaking inquiry and examination frequently will show that his statement is inaccurate. Other joints oftenest involved are the opposite shoulder and the articulations of the cervical spine. Perhaps next in order come the lumbar and the dorsal spine, the hip and the finger joints. Furthermore, it is not so very unusual to find a coexistent indurative headache or soreness and tenderness of the occipital or suboccipital region, troubles I believe to be almost invariably due to infection, the focus generally being somewhere in the head or the throat. Of like significance is tenderness of the trapezius or other neck muscles — a fairly frequent concomitant.

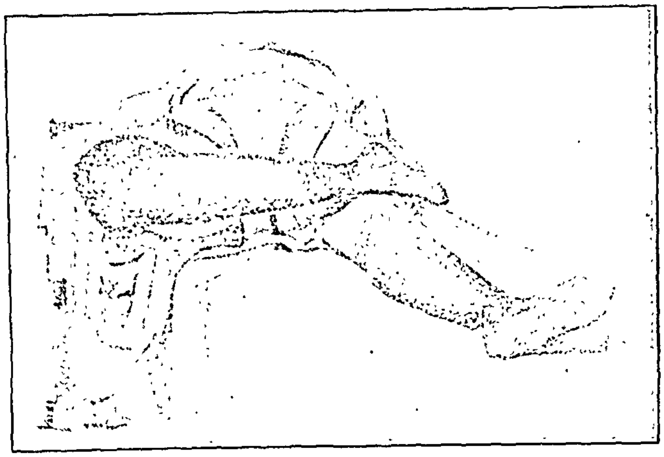
Fig. 5 (Case 1).—Same as Figure 3.

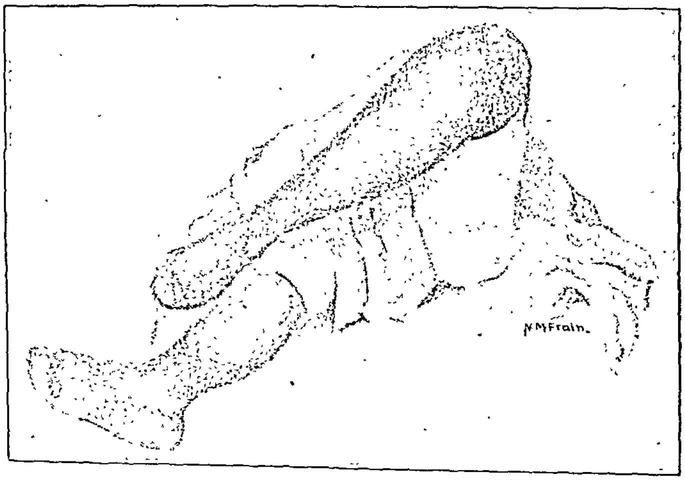

Fig. 6 (Case 1).—Same as Figure 4.

SCIATICA AND ARTHRITIS OF THE HIP

Thirty-odd years ago Dr. L. Putzel of New York called to my attention the frequent mistaking of chronic arthritis of the hip for sciatica. Since that time I have been interested in observing how much more common is the arthritis than sciatica, and how frequently an erroneous diagnosis is made.[1] Outside of large charity hospitals I believe sciatica to be a relatively rare disease, while arthritis of the hip is one of the most common. This is no new assertion. Many years ago that wonderful observer Jonathan Hutchinson expressed the opinion that a certain number of cases of sciatic pain were due to "trouble in the joint." Since then similar statements have now and then been made, and recently the elder Bruce[2] has published a remarkable little book sustaining the thesis that the pathology of sciatica is "trouble in the hip joint." Inferentially he concludes that all sciatica is hip joint trouble. I cannot go so far as he because I am quite sure that occasionally one does see a true neuritis of the sciatic nerve or sacral plexus, and semioccasionally an example of neuralgic sciatica — or at least of sciatica in which the signs of neuritis, except pain, are absent.

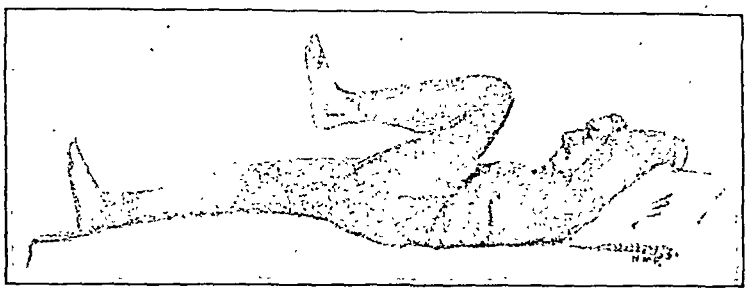
Fig. 7 (Case 2).—Arthritic side; good flexion.

Without touching on the reasons why arthritis leads to a diagnosis of sciatica, I shall simply mention a few signs and symptoms indicating the former and excluding the latter.

Sciatica, like brachial neuritis, causes no limitation of passive motion, with one notable exception — the Lasègue[3] sign — whereas, arthritis of the hip is pretty sure to interfere with some movement or other. Especially is there one sign, so far as I know never present in sciatica, which is of great value in detecting arthritis of lower grades, but which I have not seen described. For convenience of record I call it the *fabere* sign, the letters of the word standing for flexion, abduction, external rotation and extension. With the patient supine on a level surface, the thigh is flexed and then the external malleolus or ankle is placed above the patella of the opposite extended leg. In bad cases even this maneuver cannot be executed without pain, but many patients do it easily. If, however, the knee is now depressed, the ankle maintaining its position above the opposite knee, the patient will complain of pain before the knee reaches the level easily attained in normal persons.[4] This procedure involves flexion, abduction, external rotation and then extension of the thigh, and will catch more cases of arthritis of the hip than any other test with which I am acquainted. Many of the patients have quite free motion of the joint, especially flexion, and in many of them it is not easy to detect any tenderness, though firm pressure with the point of the thumb over some part of the capsule may be much more painful than on the good side. Bruce thinks that the most frequent tender point is at the upper edge of the acetabulum. Heavy percussion of the sole, or the quick shoving of the head of the femur into the acetabulum, which is almost certain to cause pain in tuberculous hip joint disease, generally fails to reveal anything in these nontuberculous cases. But rare indeed is the case which will not be detected by the test described above. In making the test, one must not be deceived by the patient's yielding to depression of the knee by tipping the pelvis. This he instinctively does to avoid pain. The pelvis must remain level.

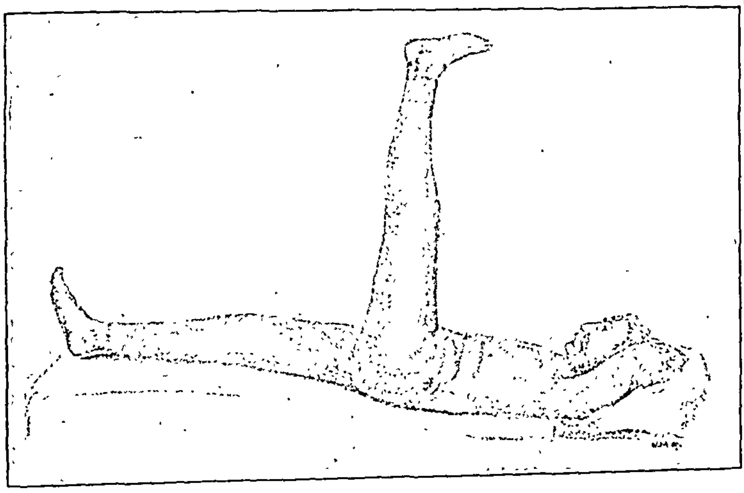
Fig. 8 (Case 2).—Arthritic side; no Lasègue sign.

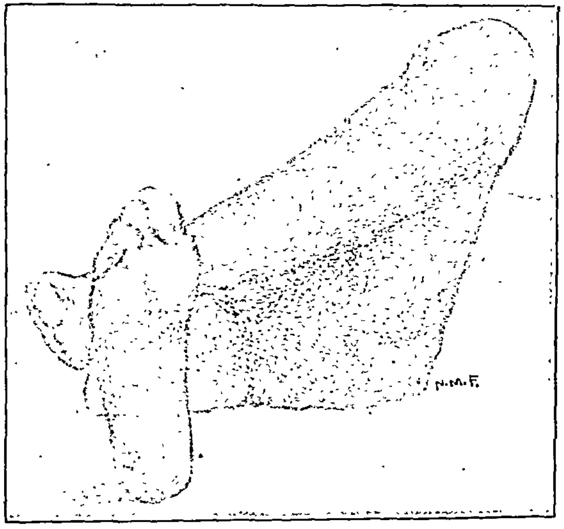
Fig. 9 (Case 2).—Arthritic side; fabere sign; knee cannot be normally depressed.

Figures 1 to 6 illustrate a case in which a woman, aged 50, complained of pain about the left hip and from the hip to the knee (Case 1). She was sent to me by one of the best surgeons in the country with the statement, among others, that a careful examination, including roentgen-ray plates, showed nothing in the hip joint. But the case was one of arthritis of the hip and, incidentally, of the left knee. Figures 7, 8 and 9 are from another case of hip arthritis (Case 2). This patient had not only free and painless flexion of the thigh, but also good abduction and rotation; and yet in this test the knee would go no lower than the point indicated in Figure 9.

It goes without saying that other tests should be used as indicated in the shoulder cases: extension, flexion, abduction, adduction, rotation, strong abduction with rotation, etc., *against resistance.*

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[1] A number of times I have known the sciatic nerve to be injected or stretched when the trouble was in the joint.

[2] Bruce, William: Sciatica, New York, 1913.

[3] Very similar to Kernig's sign. With the knee well flexed, the thigh can be fully flexed without pain; but when, with the thigh thus flexed, an attempt is made to extend the leg, it cannot be got much beyond a right angle without causing pain.

[4] If the soreness has all gone from the joint and only the relics of a previous arthritis are present, there will be no pain: only inability to bring the knee down to the normal point.

As shoulder arthritis is often accompanied by a like condition of the cervical spine, so hip arthritis frequently is complicated by involvement of the lumbar spine, and probably of the fibrous structures overlying the sacrum.[5] This may cause pain radiating down the extremity, thus assisting in the simulation of sciatica. Bruce believes that the pain down the leg is referred pain, like the pain in the knee of tuberculous hip disease.

If arthritis of the hip is present, naturally we would look for more or less muscular wasting. And this wasting, instead of being an embarrassment in the diagnosis, is an aid. Atrophy due to inflammation of the sciatic nerve of course involves all the muscles supplied by this nerve, no others, and probably the peripheral ones (leg muscles) more. The atrophy of hip arthritis, on the other hand, is found in the muscles that move the joint, especially, as Bruce has insisted, the gluteals. With the patient prone, a distinct flattening of the buttock often is apparent, and with the patient standing, a difference in the gluteal folds.

The other differential criteria distinguishing hip arthritis from sciatica may be taken over bodily from the shoulder cases. In neuritis of the sciatic nerve the Achilles jerk is diminished or lost, whereas in arthritis of the hip it is normal or, more frequently, increased. The knee jerk on the affected side is also nearly always increased. But in arthritis of the spine with considerable involvement of the nerves, these deep reflexes may be diminished.

Bruce[6] says of sciatica, "I have rarely found the tender points of the books." I entirely agree with him. The first reason is that most of the cases are not sciatica. But even in this disease the classical points of Valleix are a delusion and a snare. In arthritis, more or less tenderness on the affected side is almost the rule.

How much of this is of organic origin and how much due to the hypersensitiveness of a long-suffering patient is not always easy to say. I know that in arthritis of the hip, if one firmly punches the gluteal point, the femoral point, the popliteal point and the submalleolar point, frequently one or more of them will be or seem to be tender. But if the examiner is not satisfied with this, and proceeds to punch other places, from the iliac crest to the heel, he will find muscular tenderness, joint tenderness, tendon or fascia tenderness, sometimes even periosteal tenderness, all of which has nothing to do with the sciatic nerve.

Concerning one striking sign or consequence of sciatica, I am in doubt. This is the high degree of scoliosis or lateral curvature sometimes observed. I do not know whether this can be caused by simple arthritis of the hip, but I think that it can.

25 East Washington Street.

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[5] Cases thought to be lumbago with sciatica or alternation of these two affections are generally cases of arthritis of spine and hip or of the former alone.

[6] Bruce, William: Sciatica, p. 11.

TORULA IN MAN

REPORT OF A CASE WITH NECROPSY FINDINGS

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SAN FRANCISCO

Torula is a form of yeast, producing lesions preferably in the central nervous system. These lesions macroscopically simulate tuberculosis, from which disease they must be differentiated as well as from lesions formed by coccidioides and blastomycetes. It is not my object in this paper to go deeply into the differential features of these three diseases but briefly to point out the main differences and then present a case of torula infection in a man admitted to the San Francisco Hospital, September, 1916.

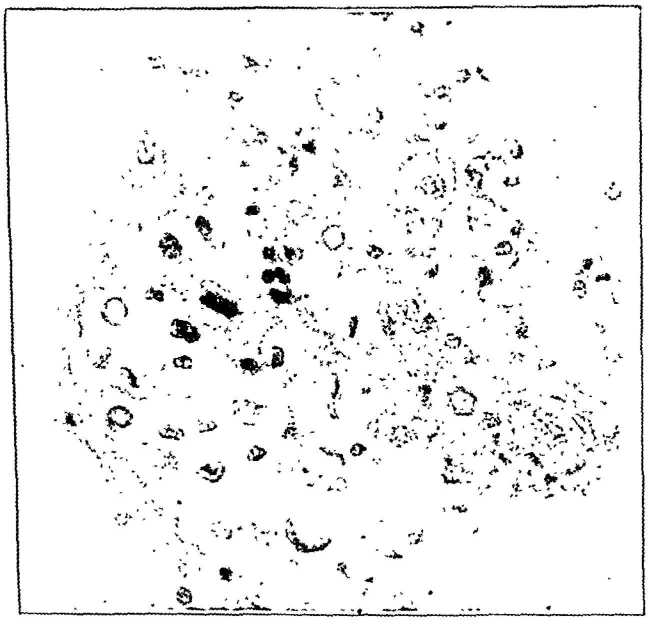
Fig. 1.—Low power view of lesion from cortex, several organisms seen with clear zone of gelatinous material surrounding them.

It is definitely agreed that coccidioidal granuloma and blastomycosis are two different diseases. Coccidioidal granuloma is a disease produced by an organism which sporulates but never buds in tissue. It varies greatly in size, having large forms up to 30 or 40 or even 80 microns in diameter producing many small ascospores which, in turn, escape from the capsule. It simulates tuberculosis in the type of its lesions and in the manner of spreading, principally by the lymphatics and thence to the blood stream. It is largely confined to men in the San Joaquin Valley, California. It is nearly always fatal, as no treatment has been found that is of any benefit.

The organism of blastomycosis varies in size from 3 to 20 microns. It buds but never sporulates, the buds being from one-half to one-third the size of the parent cell. It grows to the size of the parent cell before reproducing itself. It produces nodules with or without caseation, and deep and superficial abscesses with polymorphonuclear leukocytosis. It may affect all organs, including, as a rule, the skin and the bones, and it is helped by iodids. On culture mediums both the blastomycetes and coccidioides grow mycelium sooner or later. The organism of coccidioidal granuloma also produces chlamydospores at the ends of the aerial hyphae in cultures.

Years ago torulae were found to have a marked pathogenic action in animals; but prior to this case there have been only six reported in man—two by Rusk, two by Stoddard and Cutler, and one each by

Türck and von Hansemann. Torula a pseudoyeast, is distinguished from the true yeast by its absence of endospore production under all circumstances, by the fact that it never produces mycelium, that it usually does not ferment sugars, and that it reproduces itself only by budding. It is also more pathogenic for animals than is the true yeast. The central nervous system is particularly susceptible to this organism, which, however, attacks other organs less often. The pathologic changes in the meninges show a chronic inflammatory reaction with areas of caseation like tuberculosis if the lesion is extensive. The organisms, which usually occur in cells, bud in the large vacuoles enclosing them and then, as a rule, destroy the cells. The size varies from 1 to 13 microns. Small organisms may bud, the daughter cell soon attaining the size of its parent. In the older stages the organism develops a resting stage, and there is definite evidence of healing. For this reason, we may believe that the disease, while always chronic, is not always fatal and healing does occur. It is quite possible that many cases exist but are not recognized because of the obscure nature of these healed lesions. The organism possesses a definite cell membrane which stains diffusely and easily with van Gieson's stain, methylene blue and hematoxylin. In the large forms, the protoplasm is not evident. In the medium-sized, it is often shrunken into an irregular shape and takes a diffuse red stain with differential droplets. In the small forms, it fills the organism and has dark staining masses. Around the organism there is always a clear zone composed of gelatinous material. This is one of the characteristic features of the disease, for in coccidioides and blastomycosis there is no such solution of tissue. With or without caseation, nodules are formed composed of epithelioid cells, giant cells (often containing the organism) and lymphoid cells. Caseation occurs centrally, and apparently depends on the action of cell products. There are no collections of polymorphonuclear cells, and no bone or skin lesions. On culture mediums the original growth is most luxuriant on carbohydrate materials such as potato and agar or glucose agar, though scanty on blood serum. After animal inoculation, growth is more vigorous on blood serum, but better on the potato and glucose agar. Cultures continue to be viable even after years of disuse.

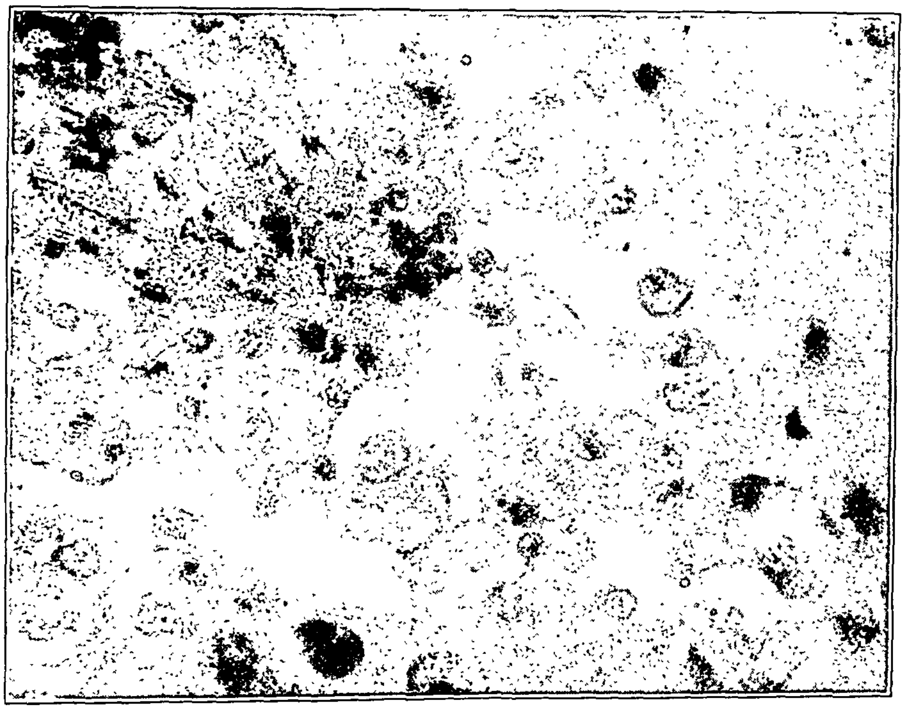

Fig. 2.—Same as Figure 1, under oil immersion. In left lower corner there is a very definite organism. The relative size of large mononuclear and plasma cells *should be noted.*

The localization of lesions in the nervous system is in the meninges, in the perivascular spaces, and in the brain substance by extension from these lesions. They have been found also in the choroid plexus, in the aqueduct of Sylvius, in and about the foramen of Magendie, and in the basal ganglions, the internal capsule, the frontal lobes and the cerebellum. Thus it may be seen that these lesions, although very small, may cause symptoms of grave importance. There is seldom fever or increase of the white count. The optic nerve may become involved, or the choked disk may be secondary to other lesions. Infection probably takes place through the respiratory tract, although it may occur through the pharynx and esophagus. Organisms are taken up by giant and large mononuclear cells, within which they continue to live and multiply, finally destroying them and becoming free. In the brain, organisms are carried along the perivascular spaces, and lesions develop peripherally in the brain substance, chiefly by solution of tissue. This ameba-like action is not as easily performed in other organs, probably because of the greater resistance of their tissue as compared with that of the brain. So we may say that the organism works in two ways: (1) mechanically, in that its growth within cells causes pressure and finally destruction, and (2) chemically, as shown by the solution of tissue. By attacking the host in the central nervous system, the organisms diminish the resistance of the patient even by small lesions critically placed.

It may be said that morphologically torula may be differentiated from coccidioides by its uniform size. It differs also in its method of reproduction, which is by budding rather than by spore formation. It resembles blastomycosis so far as the organism itself is concerned, but differs in its tissue reaction. Blastomycosis has a polymorphonuclear infiltration and no solution of tissue, while torula has this typical lysis of tissue and attracts mononuclears rather than polynuclears.[1]

The report of this case, with the pathologic findings of Dr. Ophüls, follows.

History.—E. F., aged 57, laborer, single, was born in New York, resided in California forty-five years and entered the San Francisco Hospital, September, 1916, with the diagnosis, on admission, of "second degree burn of shoulder, and senile dementia." The family history was negative. The past history was also negative, except for the fact that he had had gonorrhea twice and a soft chancre. While shaving he suddenly and without warning fell to the right, burning his right shoulder on the heater for hot water. He was able to walk, and had no great inconvenience aside from the burn. This was all the history obtainable. The burn healed satisfactorily, and he was transferred to the medical service for an examination of his mental condition. While in the hospital he was quiet, and seldom spoke to any one. At times he tore the dressing off the scalded arm and threw off the bed covers. His appetite was good, and he ate in a sensible fashion. At about the beginning of the third week, he forgot to put on his bath robe when going to the toilet, and seemed distressed when asked why he did this. A few days after the appearance of these symptoms, he developed an inability to grasp objects properly or at the first reach. He would grope past them into the air. When feeding himself, he could not find his mouth easily. This was followed by a tendency to stagger forward when walking, and an inability to articulate properly. October 11, he had to be restrained in bed.

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[1] A very complete monograph on torula, which may be referred to for further data, is that by Stoddard and Cutler: Torula Infection in Man, Monograph 6, Rockefeller Institute for Medical Research, Jan. 31, 1916.

Physical Examination.—The patient was a large, strong man, restless and irresponsive. Supra-orbital pressure elicited facial response which showed no paralysis of facial muscles. The eye movements were normal. The pupils were dilated with atropin. The tongue protruded in the median line. The heart was not enlarged, showed no murmurs, and was regular in rate, the pulmonic second sound being equal to the aortic second sound. The lungs were negative except for a few râles at the bases. The abdomen was negative, as were its normal reflexes. The extremities were negative. There was a markedly stiff neck and a positive neck sign. The left knee showed a slight jerk not observed in the right. There was no clonus or Babinski. The Kernig was positive. In the examination of the eye, the fundi were normal. The blood pressure was 160.

A lumbar puncture was made, October 17, and 15 c.c. of fluid were withdrawn. The fluid, under considerable pressure, was very yellow, clear and alkaline. The Noguchi and the Nonne reactions were positive. The cell count was 488 per cubic centimeter. The differential showed all lymphocytes. The Wassermann reaction was negative. The culture on the blood serum showed no growth.

October 18, the patient was much clearer mentally, and needed less restraint. His answers were still incoherent. His condition remained about the same. The blood Wassermann was anticomplementary.

October 30, the patient was considerably worse. Examination revealed a stiff neck, and a positive Kernig sign, but no paralysis. As a second lumbar puncture was bloody, no tests were done except a Wassermann, which was negative.

November 1, fundi were negative.

November 2, the patient died, after being incontinent for urine and feces for several days.

The temperature was never more than 97, except on one day when it was 101. The pulse was from 75 to 90, and the respirations were from 20 to 25. On the patient's entrance into the hospital, the white count was 7,600; on the day before death, 15,600. The urine was alkaline, and its specific gravity was 1.020. There was a trace of albumin but none of sugar. Sediment, epithelial cells and bacteria were present.

Pathologic Findings.—A postmortem examination, done at 4:30 p. m., revealed a moderate old cirrhosis of the liver, an old thrombosis of the portal vein, marked ascites, very marked enlargement of the spleen, and numerous old scars in the kidneys, with very marked arteriosclerosis of the branches of the renal artery. There were some old scars in the upper part of the lower lobe of the left lung, and some caseous areas in the peribronchial lymph nodes. There was present also a terminal bronchopneumonia. Examination of the central nervous system revealed a tense dura somewhat thickened. The pia mater on the convexity of the brain was somewhat edematous, and showed markedly diffuse thickening. The convolutions were slightly flattened, and the dura was adherent to the pia near the median line. The large arteries at the base of the brain showed marked thickening and sclerosis. The lateral ventricles contained about 30 c.c. of clear fluid. The choroid plexus was markedly thickened and congested, as was also the ependyma of the third and fourth ventricles. The venous sinuses at the base of the brain were normal. The dura mater of the cord was somewhat thickened, and there was very markedly diffuse congestion and thickening of the pia over the entire cord. On the cut section, the cord showed a decided softening, and bulged over the cut surface. No bacteria were found in the brain or meninges.

Microscopic examination of the brain and cord revealed a marked cellular infiltration and fibrous thickening of the pia. In the pia there were numerous round encapsulated organisms resembling yeasts. Similar organisms were found in groups in the cortex of the brain, where they have caused a liquefaction of the brain tissue without much reaction. A culture taken from the cord was negative.

Microscopic examination of the peribronchial lymph glands showed numerous caseous areas and small cellular tubercles with large giant cells of the Langerhans type. In a few of these giant cells, small encapsulated organisms resembling yeasts were found.

Final Diagnosis.—This was cirrhosis of the liver; thrombosis of the portal vein; chronic splenitis; general arteriosclerosis; arteriosclerotic scars in the kidney; terminal bronchopneumonia, and torula infection of the lungs, peribronchial lymph glands, meninges and brain.

I am indebted to Dr. Ophüls for his help in determining the pathology of these tissues and to Dr. Blaisdell for the photographs.

516 Sutter Street.

THE TOXICITY OF NEODIARSENOL

ERWIN P. ZEISLER, M.D.
Instructor in Dermatology and Syphilology, Northwestern University Medical School
CHICAGO

One of the recent substitutes for neosalvarsan is neodiarsenol, marketed by a Canadian firm. It is claimed to be suitable for intramuscular or intravenous injection in either dilute or concentrated solution. I have employed neodiarsenol in dosages of 0.6 and 0.75 gm. dissolved in from 10 to 15 c.c. of freshly distilled sterile water. The powder is of a somewhat darker yellow color than neosalvarsan, and is not so readily soluble. Even after prolonged shaking there may remain small undissolved particles, which necessitates filtration.

In a recent series of twenty intravenous injections given to fifteen dispensary and private patients in all stages of syphilis, I have noticed an unusually large percentage of reactions. Ten of the patients complained of varying degrees of nausea, vomiting, headache and fever for from twenty-four to forty-eight hours after the injection. One woman with a fresh syphilitic infection (roseola, adenopathy and a positive Wassermann reaction) five days after the administration of 0.6 gm. of neodiarsenol developed fever, headache, vertigo and incessant vomiting which lasted twelve hours. In the absence of any other explanation, I was forced to conclude that this was a late toxic manifestation, possibly an encephalitis. The patient recovered under rest in bed. Another patient in the midst of the injection complained of nausea, faintness and thoracic oppression, with marked flushing of the face. He was immediately given a hypodermic of epinephrin and was able to go home half an hour later. Another patient with symptoms of early tabes collapsed a few minutes after the injection, became extremely pallid, and his pulse became almost imperceptible. The immediate reaction in this case was most alarming, but fortunately he recovered. A very obese patient on account of technical difficulties received 0.6 gm. of neodiarsenol intramuscularly. The pain and local reaction were so intense as to require morphin injections for the next forty-eight hours.

On account of these unpleasant experiences I have abandoned the use of neodiarsenol, and have since then employed the French preparation, novarsenobenzol (Billon), which has given satisfaction.

30 North Michigan Avenue.

Clinical Notes, Suggestions, and New Instruments

TRANSFUSION OF IMMUNIZED BLOOD FOR CHRONIC BACTEREMIA: REPORT OF A CASE

Henry P. Wekesser, Ph.G., M.D., Lincoln, Neb.

History.—Miss J., aged 22, a nurse, whose family and early history were negative, developed tonsillitis a few days after having attended a patient whose illness began with acute tonsillitis and terminated in a fatal pneumonia. Cultures from the throats of both the nurse and her patient showed mixed infections, and diphtheria antitoxin was used along with the other treatment.

When the nurse came under my care she had been sick about seven months, during which time one complication had followed another, indicating that never during that time had she been entirely free from the original infection. When the throat infection began to improve, she developed a purulent inflammation in the left antrum of Highmore, which was promptly drained through the nose. Following this infection, all the larger joints of the body became inflamed. During the latter part of the first of several attacks of general arthritis, endocarditis developed. In the treatment of the patient, autogenous and stock vaccines had been used along with drugs and other hygienic measures.

When the patient came under my care, there was still some discharge from the antrum, though the joint invasion had apparently subsided. But the rapid pulse, irregular daily chills followed by fever and sweating, spells of dyspnea with cyanosis, swelling of the ankles, enlargement of the heart, loud systolic murmur at the apex, and a dry hacking cough indicated that the endocardial infection was still active and possibly ulcerative in character. Smears from the antral discharge revealed a predominance of diplococci resembling the pneumococcus. Blood cultures also revealed the same organisms in pure culture.

Rest in bed, drugs, ice over the cardiac region, etc., were ineffective.

Treatment by Transfusion.—Since all other known methods of treatment had been tried, the following plan was devised: A vaccine was prepared from a culture made from the patient's blood. From five to seven doses of this vaccine were administered hypodermically in six-day intervals to four volunteers of about the same age as the patient. Their blood was first thoroughly examined (including the Wassermann test) and tested against that of the patient. In order to immunize them against the patient's infection, the volunteers were vaccinated as needed, and from 250 to 500 c.c. of blood were transmused from an immunized donor to the patient in ten to fourteen-day intervals. More blood was not given at one time because of the cardiac weakness of the patient. In all, six transfusions were made.

Blood cultures were negative after the second transfusion. Chills and fever gradually ceased, and the patient became stronger and was able to leave her bed and even walk a little, two months after the first transfusion.

Although physical signs still indicate an insufficient mitral valve, the patient has again resumed nursing, ten months after the first transfusion.

COMMENT

Whether the endocardial process was simple or ulcerative cannot be proved. The anemia and blood infection disappeared rapidly after the first transfusion. Our present methods of preparing autogenous vaccines make this method safe. Also, it is certainly more rational than the use of vaccines in the treatment of chronic blood infection.

Military Medicine and Surgery

SEXUAL INFECTIONS IN CANTONMENTS AND CAMPS

A FOLLOW-UP SYSTEM FOR THEIR CURE AND CONTROL

JAMES BAYARD CLARK, M.D.
Major, M. R. C., United States Army
NEW YORK

This system, which has been installed in Camp Lee, Va., has three distinct objects in its pursuance:

First, a running record on cards that reflects in outline the entire activity of the genito-urinary service at the base hospital.

Second, a means by which all patients can be observed and their record continued after discharge from the base hospital.

Third, and most important, a method of restriction from any absence from the reservation of all infected patients until on examination such patients are found free from further infectiousness and can safely be allowed a pass to leave the confines of the camp.

The simplicity of this system is best illustrated by the printed forms, which are here shown in the order of their employment.

FORM 1

Genito-Urinary Service, Base Hospital, Camp Lee, Va.
Surname Christian Name Rank Co. Regt.
Diagnosis Duration
Condition on Admission (.. 19..).
Remarks
Condition on Discharge (.. 19..).
To return

Form 1, a card form, is filled in from the ward records of the patient on discharge from the hospital.

If the patient is discharged as cured, the case is considered as complete and the card placed in the permanent filing case. If the patient is not cured, the date and hour for the patient's return for observation is noted on the card, and the card is placed in an envelop, on the upturned flap of which is written the date of return for this patient. The envelop is then placed in a temporary file according to the date, with the flap up, so that from this calendar-like file as the days come round the envelops

FORM 2

Base Hospital, Chief of Genito-Urinary Service, Camp Lee, Va.
From: *Chief of Genito-Urinary Service*
To: Regimental Surgeon ....
Subject: Treatment of patient on discharge from Base Hospital.
1. The following treatment is recommended in the case of
....
Rank Name Rank Co. Regt.
2. It is requested that this man be directed to report to me for
examination,
operation, on .... 19.., at .... M.
treatment,
....
Major, Med. Res. Corps.

are taken out and the cards reveal which patient or patients are to return that day for observation, treatment or operation, as the case may be. When a patient is cured, and the case closed, the card goes back to the permanent file; otherwise it continues running in the calendar file until completed. The subsequent notations when the card is filled are written on a plain card headed by name, rank, etc., and fastened to the original card.

Letter Form 2 is filled out and sent off at the same time the card form is started, that is, when the patient is discharged from the base hospital and returned to the care of his regimental surgeon. This letter form is also used on all subsequent visits to the base hospital by the patient, when it is desirable that he should return.

FORM 3

Base Hospital, Office of Genito-Urinary Service, Camp Lee, Va.

From: Chief of Genito-Urinary Service

To: Commanding Officer, ... Co. .... Regt.

Subject: Failure of patient to report.

1. Your attention is invited to the fact that

....
Name Rank Co. Regt.

has not reported for .... *on* ....

19... .... M., as requested in letter to Regimental Surgeon

.... 19...

....
Major, M. R. C.

Letter Form 3, it need hardly be mentioned, will be but rarely required. Its wording, however, will suggest the moment of its usefulness.

Forms 4, 5 and 6 work rather independently of those just described.

FORM 4

Base Hospital, Office of the Genito-Urinary Service, Camp Lee, Va.

From: Chief of Genito-Urinary Service

To: Regimental Surgeon ....

Subject: Control of infectious cases of venereal disease.

1. The enclosed forms in numerical sequence are for use in cases of venereal diseases under your care, and are self-explanatory.

2. These forms are to be used in all cases of venereal disease, which had occurred *since the opening* of this cantonment, and are to be continued in use in all subsequent cases.

3. These forms will be issued from this office in such numbers as you may require.

....
Major, M. R. C.

These cards with return envelops are sent (a small number of each) to each regimental surgeon, along with the letter of instruction as to their application.

The numbers of the cards and the surgeons they are sent to are first carefully noted in a book kept for that purpose, and all subsequent cards sent out are likewise kept track of, to be checked up, first when the examination is made and finally again when the cards come back.

It has seemed wise to have all patients with sexual infection in camp report to some one center, well equipped with laboratory facilities and specially trained men, and here pass that important final judgment as to whether the patient is free from infectiousness and can with safety be allowed to visit the civil community.

If the civil communities will do as much to protect the soldiers in this respect as the military is doing to protect civil populations, they will do much not only toward shoring up their own social structures, but also toward shortening the war.

A brief study of these cards will make their function and significance plain, both as a check on the infectious soldier, and as a complete record of all such cases in a camp taken from a different angle than are the present military reports.

FORM 5

Camp Lee, Va.

No.......

From Surgeon ....

To Commanding Officer .... Co. .... Regt.

You are hereby informed that ....

is infected with ....

Attention is invited to the C. of O. 1881-1915, Par. 92, subsection 3, page 214, which states that "*while in* the infectious stages the men should be confined strictly to the post."

The above soldier should not be given leave of absence from the reservation until, upon examination, no further evidence of infectiousness can be found, and the *attached* card is signed by surgeon of the Genito-Urinary Service.

This card is to be retained by Company Commander until card of *examination is signed* and returned to him, at which time he is requested to return both cards to the Genito-Urinary Service, Base Hospital.

....

Genito-Urinary Service

No.......

BASE HOSPITAL, CAMP LEE, VA.

Name .... *Rk.* .... *Co.* .... Regt.

shows no further evidence of infectiousness from..................

...., and is discharged from

further treatment.

....Major, M. R. C.

Base Hospital..............19 , ...

Before any leave of absence can be obtained following above exami*nation, this card is to be taken by the soldier to his Company Com*mander.

It has been mentioned that the latter set of forms works rather independently of the former, and this is necessarily so, as a large proportion of sexually infected soldiers are cared for by their regimental surgeons and do not come to the base hospital at all; however, this plan of having every man come to one central bureau for his final examination is of much importance, as it not only brings the regimental surgeon and the base hospital surgeon into a closer and more purposeful cooperation in reaching a higher standard, but also increases the respect of the soldier in the vitally important subject of a sexually clean bill of health.

ENVELOP FORM 6

War Department Penalty for Private Use $300.

From Commanding Officer

Co. Regt.

....

Official Business.

For return of card No. *XXX*

To Chief of Genito-Urinary Service,
Base Hospital,
Camp Lee, Va.

If what many are seeking to make us believe today is so, that there is more loss of service in the armies of our allies through sexual infections than through the usual wounds of war, then to the Medical Corps of our Army there comes a warning not to be lightly laid aside, and to the medical officer whose duty includes the care and control of sexual sickness there comes a singular responsibility, for in the manner of his doing, it may be that the balance of man power in the final struggle of this war shall be determined.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

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SATURDAY, DECEMBER 29, 1917

THANK YOU

In response to the note in last week's issue of The Journal, a large number of remittances for Fellowship dues and subscriptions for the ensuing year have been received. No doubt at this time many are at the point of remitting. For the convenience of those who may have misplaced the slip enclosed in last week's issue, another is inserted in this number. Those who have already remitted will of course ignore the slip in this issue.

RECENT WORK ON GASEOUS GANGRENE

Recent investigations have added greatly to our knowledge of gaseous gangrene. To determine whether the conditions currently designated as gaseous gangrene are associated with the same or with different bacteria, Weinberg and Seguin[1] made an exhaustive bacteriologic study of ninety-one cases of gangrene. They found anaerobic bacteria in the wound in every case, occasionally just a single anaerobic species, occasionally several anaerobes in association; but in the majority of the cases several different anaerobes and aerobes were present. This result might be taken to indicate that no one bacterium plays a predominant rôle in the development of gaseous gangrene, and consequently that the outlook for a specific treatment based on a definite and constant etiology is not promising. It is highly significant, however, that the most common anaerobe by far in this series, being present in two thirds of the cases, was *Bacillus welchii,* also called the gas bacillus, or *B. perfringens,* as the French call it. Next in frequency came a bacillus which is called *Bacillus oedematiens,* and then the *vibrion septique* of Pasteur, or the bacillus of malignant edema. Probably these two organisms are closely related. In the cases with abundant gas production, extensive crepitation, bronzing of the skin, etc., that is, the classical form of gaseous gangrene, *B. welchii* was the dominating organism, while *B. oedematiens* (bacillus of madignant edema) predominated in certain toxic cases with progressive edema; but cases of mixed infection with both these bacilli were observed also. The investigations of Weinberg and Seguin emphasize, consequently, that in gaseous gangrene, that serious complication of war wounds, *B. welchii* is by far the most important organism. Injured muscle, exposure of bone marrow and interference with the circulation on account of arterial injury, tight splints and casts are conditions that favor the growth of this bacillus, infection with which is bound to occur with great frequency because it is in the soil and on the skin and clothes of the soldiers, especially those in the trenches. Laying wounds open and cleansing them thoroughly, removing all foreign materials and damaged tissue, naturally will cut short many cases; while in many others the invasion of the bacilli and the resulting general intoxication rapidly pass beyond arrest and cure even by the most skilful and thorough local treatment, and demand new and more subtle methods.

Probably the decisive step toward finding one such method already has been taken. Weinberg and Seguin[1] urge the use of antitoxic serums which they have prepared against the three most important anaerobes concerned in gaseous gangrene, but we as yet know practically nothing of principles and methods they have followed in developing these serums. In earlier communications, Weinberg[2] states that antitoxic serums have been secured from the horse against *B. oedematiens* and *vibrion septique,* and antibacterial serum against *B. welchii* (*B. perfringens*); but no exact description of the methods used is given. In the meantime, Bull and Pritchett,[3] whose work has been discussed in these columns before, laid a sound experimental basis for antitoxic serum treatment of infections with *B. welchii* by showing that when this bacillus is grown in broth with sterile rabbit muscle a typical toxin is produced, which in the guinea-pig causes symptoms typical of the infection, and which in suitable animals evokes the elaboration of a specific antitoxin with both protective and curative properties under experimental conditions. The discovery that *B. welchii* produces a true toxin places it in the same group as *B. diphtheriae, B. tetani* and *B. botulinus.* DeKruif, Adams and Ireland,[4] as well as Bull,[5] find that the toxin produced by various strains of *B. welchii* is neutralized by the same antitoxin, which would indicate that if the natural infection can be influenced by antitoxic serum, one and the same toxin may serve as the antigen in the process of immunization. DeKruif and Bollman[6] further show that acid plays no part in the intoxication produced by *B. welchii,* as asserted by earlier workers, and thus support the view of Bull and Pritchett, that a true toxin is the essential factor in the general intoxication.

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[1] Weinberg and Seguin: Etudes sur la gangrene gazeuse, Ann. de l'Inst. Pasteur, 1917, **31**, 442.

[2] Weinberg: Proc. Roy. Soc., 1916, **9** (occasional lectures), 119.

[3] Bull and Pritchett: Jour. Exper. Med., 1917, **26**, 119.

[4] DeKruif, Adams and Ireland: Jour. Infect. Dis., 1917, **21**, 580.

[5] Bull, C. G.: Jour. Exper. Med., 1917, **26**, 603.

[6] DeKruif and Bollman: Jour. Infect. Dis., 1917, **21**, 588.

From the foregoing it appears that *B. welchii* is a toxicogenic bacterium, and that it is the most important bacterium concerned in so-called gaseous gangrene; that other anaerobic bacteria, the mechanism of the infection with which we do not understand as well, may also be concerned, and that the stage is now set for the treatment of gaseous gangrene with antitoxic serum. The outcome will be watched with much interest.

THE CEREBROSIDS OF THE BODY

Only a few years have passed since the so-called lipoids were regarded as essentially characteristic of nervous tissue, from which some of them were first prepared in amounts adequate for careful study. Subsequent investigation demonstrated a far more widespread distribution of these fatlike organic substances in tissue of the most diverse sort, in both the animal and the plant kingdoms. The lipoids, or at least representatives of this somewhat heterogeneous group of compounds, are today looked on as important constituents of living cells in general; and they appear to play a prominent part in the structure and function of the cell membranes. Their physical properties are quite unlike that of the ordinary water-soluble components of tissues; and the unique character of their chemical composition suggests important functions of a chemical nature, whatever they may be.

Among the lipoids the phosphatids, a group including lecithin and kephalin, have received the most attention. The assumed and possible relations of these substances to various physiologic and pathologic phenomena have frequently been discussed in THE JOURNAL. Only recently kephalin has come into unanticipated prominence, owing to its presumable rôle in the reaction of blood coagulation.[1] Lecithin is being brought into relation to the metabolism of the fats, especially through the researches of Bloor. Cholesterol, long familiar as a conspicuous constituent of the brain and a component of gallstones, likewise has acquired a new prominence in connection with the blood. Less well known is that group of lipoids to which the designation of cerebrosids has been given. The pioneer worker on this type of substances was Thudichum,[2] who assumed the existence in brain tissue of at least two different compounds characterized by yielding, on decomposition, the sugar galactose together with a nitrogenous base, sphingosin, and a higher fatty acid.

Thus the names of two cerebrosids, phrenosin and cerasin, entered the literature of physiologic chemistry in connection with the study of the composition of the brain. Phrenosin yields cerebronic acid, whereas, from cerasin, lignoceric acid has been obtained. Not only have the cerebrosids now been found in other organs than the nervous system, but there appears to be an identity of these lipoid substances in the several tissues, just as has been found true of other lipoids. Levene and West[3] have lately demonstrated that the cerebrosids in egg yolk, the liver and the kidney seem to be identical with those obtained from the nerve tissue. They yield the same sugar, galactose, the same base, sphingosin, and the same fatty acids, lignoceric and cerebronic. It is not certain whether the two cerebrosids, phrenosin and cerasin, occur in the same proportions in nerve tissue and in the various other organs. This uncertainty applies, however, to every other individual lipoid. It is quite possible, as Levene and West remind us, that the proportions of the lipoids vary with the variation of the organ. Certainly it represents a distinct step in advance to have more intimate knowledge of the chemical compounds with which the performances of our body cells are inevitably concerned. Metabolism, immunity, heredity are merely words that express in an as yet indefinable way the chemical manifestations bound up with the performance of compounds at present unidentified — possibly the very substances that these newer lipoid researches have helped to elucidate. Studies in this field are attended with enormous difficulty; they should be encouraged all the more because of the great promise which the successful invasion into its secrets holds out.

URIC ACID AND GOUT

It would be impolitic and essentially wrong, Otto von Fürth[4] wrote a few years ago in relation to gout, simply to ignore whatever judicious objective observers have found appropriate after decades of study, merely because no theoretical explanation has been found. It should never be forgotten that the observations of the practitioner may be true and the theories may be false, and that a judicious natural scientist generally values the former more than he does the latter. Unfortunately, objective observation, especially in the treatment of chronic internal affections, is endless and difficult; and for that very reason this has been and will be at all times and among all people the favorite field for both scientific and unscientific charlatanry.

Assuredly, therefore, we need to secure the attainable scientific facts regarding gout, and particularly its much discussed relation to uric acid, with which it has been prominently associated ever since Garrod's studies in 1848. Garrod's contention, that the bloody of gouty persons is characteristically richer in uric acid than is the circulating medium of normal persons, long ago awakened inquiry as to the cause of this phenomenon. The accuracy of the observations might well have been debated up to a few years ago, when microchemical methods of analysis greatly simplified the determination of the facts with comparative ease on a larger number of patients. At present it seems to be agreed that the gouty show an increase of uric acid in the blood. The latest report[5] in this field, reviewing the situation, concludes that on statistical evidence more than 3 mg. of uric acid per hundred c.c. of blood, with the patient on a purin-free diet, is a symptom of gout, but is not a diagnostic sign of the disease.

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[1] The Hemostatic Action of Kephalin, editorial THE JOURNAL A. M. A., Nov. 4, 1916, p. 1373.

[2] Thudichum, J. L. W.: Physiological Chemistry of the Brain, London, 1884.

[3] Levene, P. A., and West, C. J.: Cerebrosides, V, Cerebrosides of the Kidney, Liver, and Egg Yolk, Jour. Biol. Chem., 1917, **31**, 649.

[4] Von Fürth, Otto: Chemistry of Metabolism, translated by A. J. Smith, Philadelphia, 1916, p. 193.

Is this increase of uric acid in the blood of gouty patients to be ascribed to either an increased entrance or a diminished escape of the material? At present there is little reason for postulating an increased genesis of uric acid in gout, although such a theory was popular a few years ago. There can be no question, however, of occasional delayed excretion of uric acid by the gouty. It was quite natural, therefore, to correlate the uric acid stagnation with defective renal function. When no clear indications were discernible, a "latent" nephritis was sometimes postulated in explanation of the "gouty diathesis." Today the possibility of applying functional tests to the kidney makes a vague explanation of this sort scarcely justifiable. It is not easy to distinguish cause and effect in the alleged association of gout and nephritis. In their investigations at the Peter Bent Brigham Hospital in Boston, McClure and Pratt have become convinced, like others before them, that although in the majority of gouty patients there are increased amounts of uric acid in the blood, a large percentage do not have markedly increased quantities of other nonprotein nitrogenous substances in their blood when on a purin-free diet. Indeed, they categorically state that a marked retention of nonprotein nitrogen is not frequent in gout.

It was to be expected that considerable light might be thrown on the meaning of the augmented uric acid in the blood if the fate of exogenous purin-yielding foods in gouty subjects could be ascertained. Human patients alone suffice for this purpose, since, in the common laboratory animals, in contrast with man, uric acid is further oxidized in the body. McClure and Pratt have followed the effects of injections of uric acid, and of the ingestion of purin-forming products, in man. Their results, along with previously known facts, indicate that in normal and nongouty as well as in gouty persons there is great variability in the quantity and in the duration of exogenous uric acid excretion. For this reason, they say, a diminished or a protracted exogenous uric acid output most probably results from factors other than disturbances in the purin intermediary metabolism. If this is not true, then derangements in purin metabolism are so common that their importance in the etiology of any diseased condition is problematic.

If the failure to eliminate exogenous uric acid promptly is not peculiar to gout, though it would appear to occur more frequently in gouty than in nongouty persons, we may assume, with the Boston investigators, that the acid enters the body tissues in some way, since it is not known to be destroyed in the body. For the moment, in attempting to make a diagnosis it is perhaps preferable to depend on the analysis of the blood rather than on the failure to excrete exogenous uric acid promptly.

CREATINURIA

The excretion of creatin in the urine is a phenomenon now generally recognized to occur at times in normal persons. The intake of a very large quantity of creatin may lead to some elimination of this compound; but creatinuria occurs in healthy persons under conditions that are not referable to such a cause. Normal men do not excrete creatin through the kidneys under usual conditions of diet. Normal children, however, are now recognized to excrete creatin commonly during the period of adolescence. This was demonstrated in this country several years ago by W. C. Rose[1] at Yale University and verified by Folin and Denis[2] at the Harvard Medical School. Subsequently Krause[3] showed that the younger the child, the less its ability to retain creatin administered by the mouth. These observations have been puzzling to the physiologist and have led to a variety of hypotheses as to the unexpectedly unlike behavior of the juvenile and the adult organism, respectively, in the matter of spontaneous creatinuria. The problem was seemingly further complicated by the statement of Krause[4] that the urine of normal women frequently contains small amounts of creatin. This creatinuria, according to Krause, is associated with the sexual cycle, and is always present after menstruation; and while in some individuals it may disappear during the intermenstrual period, in others it persists.

The facts regarding creatinuria in children remain unchallenged. With respect to the possibility in women, Mary S. Rose[5] has reinvestigated the subject quite extensively over longer periods of time on a number of adult women. She reports that the creatin output of women is very irregular, and no definite relationship between creatin and creatinin has been demonstrated. There is no clearly defined connection between the creatin output and the sexual cycle. Creatin tends to disappear at the onset of menstruation and to reappear shortly afterward, but it may do the same at other times also.

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[5] McClure, C. W., and Pratt, J. H.: A Study of Uric Acid in Gout, Arch. Int. Med., October, 1917, p. 481.

[1] Rose, W. C.: Jour Biol. Chem., 1911-1912, **10**, 265.

[2] Folin, O., and Denis, W.: Jour. Biol. Chem., 1912, **11**, 253.

[3] Krause, R. A.: Quart. Jour. Exper. Physiol., 1914, **7**, 87.

[4] Krause, R. A.: Quart. Jour. Exper. Physiol., 1911, **4**, 293.

[5] Rose, Mary S.: Creatinuria in Women, Jour. Biol. Chem., 1917, **32**, 1.

In previous issues of The Journal we have discussed the current hypotheses regarding creatin and creatinin excretion. The theories that creatinuria is an accompaniment of inadequate carbohydrate metabolism induced either by dietary deficiencies or by disease, or that it is a consequence of a condition of acidosis, have been found inadequate to explain all cases in which creatin is excreted. More recently the reference of creatin elimination to a high level of protein metabolism has been revived as a working hypothesis. Thus Denis[6] found that forced protein feeding induces creatinuria in certain cases of hyperthyroidism, whereas a low protein diet produces a creatin-free urine. She has reported similar results also from varying the protein intake of children.

Denis and Minot[7] found it possible, in experiments on two normal women, to cause creatin excretion by feeding a high protein (creatin-free) diet, and to cause the creatinuria so produced to disappear by the consumption of a low protein diet. In two men to whom a similar experimental procedure was applied, Denis and Minot were unable to produce creatin excretion even when a sufficient amount of protein was consumed to cause the urinary nitrogen to rise to 34.5 gm. per day.

This contrast in the apparent behavior of normal men and women toward the same diets, with respect to the creatin output, argues for some distinct difference in their metabolic capacities. There are, however, apparent conflicts in the data available. In her observations on women, Rose[5] found not only that creatin is excreted on diets liberal in carbohydrate and causing no acidosis, but also that the excretion is not definitely influenced by the amount of protein in the diet. She therefore inclines to the view, to quote her own words, that creatin is constantly being formed in relatively large amounts and is normally for the most part either utilized or destroyed; that the adult man can metabolize considerable amounts, while the child's powers are much weaker, so that creatin in the latter represents a balance between formation and destruction; and that women occupy a position intermediate between men and children, being able to metabolize most if not all of the creatin that they may produce, the amount fluctuating with perhaps a variety of conditions. Without venturing any more detailed hypothesis, Denis and Minot repeat the suggestion that the ease with which creatinuria can be induced in normal women may be due to their relative lack of muscular development as compared with that of man. No explanation yet offered will permit a satisfactory interpretation of the now available facts; but the way to an understanding is unquestionably being made more easy by the increasing number of observations under well controlled conditions of diet.

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[6] Denis, W.: Jour. Biol. Chem., 1917, **30**, 47.

[7] Denis, W., and Minot, A. S.: The Production of Creatinuria in Normal Adults, Jour. Biol. Chem., 1917, **31**, 561.

Current Comment

EXPLOITING CHICAGO'S FOREIGN BORN

Four years ago the Chicago *Tribune* published a series of articles dealing with practically every advertising quack in the city of Chicago. In preparing the series it assigned to some of its reporters the task of investigating the local quack industry, and the reporters performed their tasks well. As a result of the light turned on this business, those English-language newspapers of Chicago that had heretofore offered a welcome haven to the quacks threw out this entire line of advertising—and kept it out. Quackery, however, was not dead in Chicago. One by one the fakers came back and adapted themselves, as quacks will, to the changed conditions. Chicago has a tremendously large foreign population, and is publication headquarters for a great many foreign-language newspapers. These the quacks patronized—and the papers have, apparently, been willing accomplices. Now the *Tribune* is publishing a second series of articles on the quacks. As in the previous campaign, a reporter has been paying visits to the various quacks, this time in the rôle of a foreign-born citizen. History is repeating itself. It remains to be seen whether the foreign-language press of Chicago can be shamed into the same action that some English-language newspapers took four years ago. If they can, the more blatant quacks of Chicago will have received a body blow, for only with the connivance of newspapers can these scoundrels ply their trade. The foreign-language press of the country professes to stand as champion of the foreign-born Americans. If this attitude is not a pretense, their course in the present matter is clear.

ULTRAVIOLET LIGHT AND BACTERIA

To understand something of the action of ultraviolet light in contrast with ordinary spectral light in relation to living structures, it must be borne in mind that the greater number of the constituents of living cells are colorless, that is, they do not absorb rays of the wave length of visible light. As many of them absorb ultraviolet light, however, the possibility of effects on living cells is thereby afforded. Sunburn (erythema solare) is a familiar illustration of inflammation due to the effect of ultraviolet light on the skin. Severe conjunctivitis also is caused by this agency, unless the eyes are protected by spectacles that are impermeable to the short waves. This danger is appreciated in electric welding, in which the arc spectrum of iron sends out the ultraviolet rays. The effects of this form of light do not extend far into more complex organisms because the absorbing power of protoplasm for ultraviolet rays is very considerable. When a better opportunity for penetration is given, as in small organisms like bacteria, a destructive effect is readily manifested. Hertel showed this in 1905; and subsequently Henri and his co-workers in Paris extended our knowledge of what has been called the abiotic action of ultraviolet light. Usually the microorganisms have been exposed in the presence of nutrient culture mediums in order that the destructive effects might be studied. These evidently offer considerable protection against ultraviolet rays.[1] At the Henry Phipps Institute of the University of Pennsylvania, Newcomer[2] has recently found that when the micro-organisms are suspended in water the baneful effect of the rays is far more obvious. Exposures to iron, zinc and copper sparks were tested. The killing power of ultraviolet light, in the case of typhoid bacilli studied by Newcomer, begins to decrease at about 2,800 Ångström units; and in the spectral region where the sun's rays begin, the sensitivity is practically nil. Typhoid bacilli unprotected by absorbent mediums are about one two-hundredth as sensitive to ultraviolet light of wave lengths from 2,100 to 2,800 Ångström units as is the photographic plate.

CHANGES IN THE PURGED INTESTINE

The postoperative lethargy of the bowel, the nausea and the apparent inertia of intestinal movement following a laparotomy form a picture familiar to every clinician. This sluggishness with its attendant gas pains, vomiting, etc., is one of the prominent symptoms of distress that usually persists for a time after operations, and challenges the efforts of the physician directed toward its relief. As a preliminary to operative procedures, it is a widespread custom to prepare the patient by purging. The staff of the George Williams Hooper Foundation for Medical Research at the University of California Medical School has made a direct test of the physiologic effect of purgation on the condition of the bowel[3]. It seemed reasonable to suppose, they state, that if purgatives have either a tonic or a depressant effect on the intestine, these effects should be demonstrable in excised segments beating in a suitable medium. Furthermore, if the treatment with purgatives should happen to leave some region of the intestine more fatigued or more irritable than others, the orderly progress of peristaltic phenomena might be interrupted. Alvarez and Taylor, who conducted the experiments on animals, thus state their findings:

> The well purged rabbit is likely to be apathetic and to look sick. Its bowel is full of gas and fluid, and the mesenteric circulation is disturbed. Excised segments beat poorly and irregularly in Locke's solution, and they fatigue quickly. They respond poorly to drugs. Some parts of the bowel are abnormally irritable, while others fail to respond at all to powerful stimuli. This unevenness in the gradient of muscular forces must interfere with the steady progress of food through the gut; and it probably favors the production of colic and gas pains.

Calomel and cascara did not seem to poison or fatigue the segments of the intestine, as did castor oil, magnesium sulphate and jalap. The investigators conclude on the basis of their experimentation with animals that it is not wise to purge shortly before an operation in which the bowel must stand drying, handling, cutting and sewing. The surgeon may well give some heed to this suggestion, at any rate to the extent of carefully weighing the reputed advantages of preoperative purgation against the detriment suggested by these studies.

PHENOLSULPHONEPHTHALEIN IN DIAGNOSIS OF DISEASE OF THE CENTRAL NERVOUS SYSTEM

Until quite recently, the textbooks have been singularly reticent about the functions of the cerebrospinal fluid. It has long been known that there may be an exchange of constituents between the cerebral sinuses and the blood stream; but the paths of transference have been a subject of some uncertainty. The debate has in part hinged about the question as to whether the spinal fluid is merely a sort of lymph bathing the nervous tissues and directly communicating with the rest of the lymphatic system, or whether it represents a secretion of special character and different origin. In any event, it is well understood that foreign water-soluble substances introduced into the cerebrospinal fluid find their way into the general circulation, from which they can subsequently be excreted by the kidneys. Thus Dandy and Blackfan[1] showed that phenolsulphonephthalein, which has been used widely as a test of renal function, is harmless when injected into the subarachnoid space, and appears in the urine in normal infants in from four to ten minutes. They employed the test pigment in a study of hydrocephalus. It has more recently been employed by Mehrtens and West[2] at the Leland Stanford Junior University School of Medicine, to determine, if possible, whether there might be some disturbance in the excretion of phenolsulphonephthalein in diseases of the central nervous system other than hydrocephalus. One naturally thinks in this connection of disease characterized by meningeal inflammation. Thickening and edema are common involvements of the vascular system and membranes of the nervous system. The California investigators have found that phenolsulphonephthalein injected into the subarachnoid space in normal persons appears in the urine in ten minutes or less. Diseases of the central nervous system, especially when involving the meninges, produce a lengthening of the appearance time to as much as seventy minutes in some cases. This delay cannot be accounted for by disease of the kidneys, or by the reduction of the phenolsulphonephthalein in the spinal fluid. In syphilis a lengthening of the appearance time may be produced before any other evidence of central nervous system involvement has appeared. An example is afforded by clinical tabetics, who furnish meager pathologic findings through examination of the spinal fluid, yet may exhibit a great delay in the excretion of the dye. Admitting that advanced general arteriosclerosis may be a factor in causing the delay in some instances, the method indicated is nevertheless of considerable significance in a diagnostic way because it may facilitate detection of organic disease when the ordinary spinal fluid findings are negative or incomplete.

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[1] Browning, H. C., and Russ, S.: Proc. Roy. Soc. London (B), 1917, **90**, 33[illegible]

[2] Newcomer, H. S.: The Abiotic Action of Ultraviolet Light, Jour. Exper. Med., 1917, **26**, 841.

[3] Alvarez, W. C., and Taylor, F. B.: Changes in Rhythmicity, Irritability and Tone in the Purged Intestine, Jour. Pharmacol. and Exper. Therap., 1917, **10**, 365.

[1] Dandy, W. E., and Blackfan, K. D.: Internal Hydrocephalus, Am. Jour. Dis. Child., December, 1914, p. 406.

[2] Mehrtens, H. G., and West, H. F.: The Absorption of Phenolsulphonephthalein from the Subarachnoid Space in Diseases of the Central Nervous System, Arch. Int. Med., October, 1917, p. 575.

Medical Mobilization and the War

NAVAL DENTAL RESERVE FORCE FULL

The Surgeon-General of the Navy announces that the Navy's needs, so far as dentists in the Naval Reserve force are concerned, are more than satisfied, and that no applications are receiving favorable consideration at present.

RED CROSS COMMISSION ON WAY TO ITALY

The permanent Red Cross Commission for Italy, which is to take over the relief work begun by Major Murphy, has sailed for that country. Robert P. Perkins, New York, is in charge of the commission, and Dr. Joseph Collins, New York, is one of the members. Major Murphy has cabled that it has been necessary to place contracts which have practically used up the $250,000 which the Red Cross appropriated for relief work in Italy, and has requested an additional $250,000. He states that there is a great deal of work to be done, as the German successes in Italy involved the destruction of many military hospitals.

COMMITTEE VISITS ITALY

On the recommendation of Surgeon-General Bradley, General Pershing appointed a committee to study hospital conditions, surgical treatment and sanitary medicine in Italy. The committee consisted of the following members: Majors Angus McLean, George E. McKean and Harry N. Torrey. Lieut. Bror H. Larsson accompanied the expedition as secretary, and Capt. James W. Inches represented the American Red Cross. Permission for this investigation was obtained through the Italian military authorities, and was granted for fourteen days.

NEWS OF THE CANTONMENTS

Thirty-Fourth Division, Camp Cody, Deming, N. M.

Dec. 21, 1917.

RED CROSS

This organization was authorized by Act of Congress in January, 1905, to be a "medium of communication between the people of the United States and their Army. . . . No volunteer aid from any society or association will therefore be accepted for the Army of the United States except through the American National Red Cross."

An office and store room has been established at each of the large camps for the purpose of adding in any possible way to the comfort and happiness of the men, and of helping with supplies prepared in advance for any emergency that may arise. If needed, these supplies are given freely through the division surgeon without any charge, request being made by the Red Cross merely for a receipt, which can be used as a voucher in connection with the return of property made by the local representative. Such donations are made for enlisted men only, officers being able to provide for themselves. But the War Department has looked so carefully after the needs of soldiers that thus far its forethought has prevented any considerable requirement on the Red Cross, whose watchful representative has usually been able to find very few needs left uncared for.

Mr. Edwin H. Brown of Minneapolis is the representative at Camp Cody, and like all other field directors his services are given without salary or remuneration from any source. No agent of the Red Cross at this camp is in receipt of any salary. Through this office there have been received to date and for the most part distributed 4,785 woolen sweaters; 4,705 woolen wristlets; 2,304 woolen mufflers; 2,598 woolen socks; 43 woolen helmets; 1,000 goggles; a Pathé phonograph to the base hospital; 65 clinical thermometers, and an electric heater to the base hospital.

At this season a particularly grateful function of this "medium of communication between the people of the United States and their Army" is the distribution of Christmas packets. Enough have come from the homes of America to provide one for each man, carrying not only its own cheer into the camp Christmas, but also the home love and ideals, which are the foundation of American character and strength.

SCHOOLS, MEDICAL DEPARTMENT

Four of these are now in operation. 1. The school for medical officers. The program for December follows:

SCHOOL FOR MEDICAL OFFICERS, 34TH DIVISION

Dec.	2 p. m.	3 p. m.	7 p. m.	8 p. m.
3	....	....	Examination	Examination
4	Examination	Examination		
5	....	....	Examination	Work of the Med. Dept. in France, Lieutenant Ramel, French Army
6	Field problem, directed by Captain Milne	Field problem, directed by Captain Milne		
7	Field hospital, internal organization, Major Knott	Care of animals, Lieut.-Colonel McGee, 135th Infantry		
10	....	....	Work of the M.D. on the West front, Captain Landale, British Army	Tactical use of infantry, Colonel Mollison, 136th Infantry
11	Field hospitals, their equipment and use, Major Knott			
12	....	....	Tactical use of field artillery, Major Oakes, 59th Artillery Brigade	Tactical use of Engineer corps, Colonel Schulz, 109th Engineers
13	Field problem, directed by Captain Milne			
14	Shell shock, Captain Phillips	Work of ophthalmologist in the Army, Captain Covington		
17	....	....	Desiderata in treatment, regimental aid station, Major Prudden	Desiderata in treatment at dressing station, Lieutenant Stolz
18	Desiderata in treatment at field hospital, Captain Milne	Desiderata in treatment at base hospital, Major Davis		
19	....	....	Tuberculosis: diagnosis and treatment, Major Bullock	Pneumonia in the Army, Captain Duncan
20	Field problem, directed by Captain Milne			
21	Meningitis, Lieutenant D'Alton	Tonsillitis and rheumatism, Major Bigelow		
26	....	....	Gas defense, Lieutenant Hickok	Burns, Major Thomas
27	....	....	Recent advances in military hygiene, Major Fagan	Cardiovascular disease in Army, Captain Carter
28	Field problem, directed by Captain Milne			
31	Cardiovascular disease in the Army, continued, Captain Carter	Exanthems, Major Pederson		

2. The school for officers of the Dental Corps meets for two hours, five days weekly. Lieut. Mortimer Sanderson, D. C., U. S. Army, is supervising dental surgeon of the division, and Lieut. J. J. Ogden, D. R. C., from Memphis, Tenn., is assistant dental surgeon. Thirty officers of the Dental Reserve Corps constitute the staff, and work in the base hospital and in the infirmaries of the various regiments constituting the division.

3. The school for noncommissioned officers of the Medical Department is just concluding a six weeks' course, which will be continued by the medical officers of each of the various organizations.

4. The school for gas defense. This is conducted by Lieut. Asa L. Hickok, M. R. C., from Meshoppen, Pa., and Lieut. C. N. Austin, S. C., Oak Park, Ill.

A gas house has been established, gas masks are provided, and arrangements are made so that every one in the division will learn the measures of defense necessary to meet this German method of making war.

Eighty-Fourth Division, Camp Zachary Taylor, Louisville, Ky.

Dec. 24, 1917.

CHRISTMAS

Christmas and New Years furloughs at Camp Zachary Taylor did not total more than 2,500 men. Much disappointment was felt when it was announced that only 5 per cent. of the command could be furloughed. Many of the Louisville soldiers found it impossible to get leave to visit their homes on Christmas day. But they found much of good cheer at the camp. The sympathetic public gave liberally toward the Christmas celebration and every man was remembered. Comfort bags, sweaters, socks, tobacco, and many acceptable gifts of all descriptions were given the men.

Among the organizations which have been prominent in arranging for Christmas celebration at the camp are the Camp Service Committee of the Red Cross and the Louisville Committee of National League for Women's Service. These organizations particularly took care of seventeen noncontagious wards at the base hospital in which 950 Christmas presents were distributed.

ADDRESSES

Col. John H. Allen, December 19, addressed the regular December meeting of the Jefferson County Dental Society. Colonel Allen has been very active in having the division equipped with proper dental apparatus, and an ample number of men for taking care of the mouths of every one.

CENSORSHIP

Brigade-General Carleton has placed a ban on indiscriminate writing in the camp. Officers and men may write for publications but their products must be censored by the division intelligence officer. Society editors of papers have been asked not to use their social columns for announcing the departure of officers from the camp or from their homes to other training stations. Only that news which is thought desirable by the division intelligence officer will be given to the press; all other general information is to be withheld.

FOOD CONSERVATION

Use of sugar and lard has been limited at the camp. Organization commanders have been instructed to have coffee prepared in their organizations sweetened before serving to the men, and they will use a maximum of 7 ounces of sugar to each gallon of coffee. In baking not more than 1 pound of sugar and 1 pound of lard will be used with each 100 pounds of flour.

HEALTH OF THE COMMAND

To controvert the false rumors which have been going the rounds regarding the health of the troops, the official records show that since the base hospital was established at the camp 3,684 patients have been treated, and only twenty-eight deaths have occurred, two of which were suicides. Weekly reports from the office of the Surgeon-General at Washington prove that the mortality list and sickness of this command is less than those of other cantonments and camps in the country. From the press, relatives and friends of the soldiers have been warned not to place any credence in the malicious rumors that are being spread, and to assist the government authorities in apprehending those circulating them by reporting the identity of such persons.

Capt. P. J. Stewart, M. R. C., of Paducah, Ky., in charge of the surgical wards at the base hospital, has just been promoted to the rank of major.

It is reported that upward of 3,000 enlisted men from Jefferson and Columbus barracks will be sent to the Lincoln Division before January 1. These men enlisted before December 15, the last day of enlistment according to the last ruling of the provost-general. Fourteen thousand men are included in the outstanding 35 per cent. No definite word has been received as yet regarding their coming. The present strength of the camp is 25,000 men, with accommodations for 44,000 men.

Surgeon-General Gorgas has been expected at Camp Zachary Taylor for the past two weeks. Quite a stir was caused at the base hospital when a telephone call was received for Miss Gallagher, the head nurse, during her temporary absence from the camp. When asked who was talking the reply came back, "General Gorgas."

The Three Hundred and Thirty-Sixth Infantry (composed of Louisville men) and the Three Hundred and Thirty-Fifth Infantry (composed of southern Indiana men) have at last been released from measles quarantine.

ARMY AMBULANCE WORK

All Louisville was shocked to learn of the terrible Louisville and Nashville Railroad wreck, December 20, but thrilled over the prompt assistance rendered the wounded by the ambulance companies from Camp Zachary Taylor. Forty-seven people were killed and as many injured.

Col. John H. Allen, division surgeon, was lecturing before the Louisville Dental Society when he learned of the accident. He immediately communicated with the commanding general of the camp, who gave permission that the ambulance companies be ordered to the scene. At 10:10 p. m., Colonel Allen communicated the order to Major Fletcher, commanding officer of the ambulance companies, to at once report to SS. Mary and Elizabeth Hospital, with its complete medical equipment, including twelve motor ambulances and a personnel of more than fifty men and twenty medical officers.

Within eighteen minutes after the order was received the first ambulance was leaving Camp Zackary Taylor for the scene. The order came after taps, and the officers and men were aroused by messengers who communicated the orders silently through the camp without causing the slightest confusion.

The ambulance companies were from Omaha and Flint, Mich.

The conduct of the soldiers was praised by all who witnessed it, as they rendered valuable aid to the injured. Especially noticeable was the way the injured were handed from the cars through the windows on stretchers without the slightest confusion.

Eighty-Ninth Division, Camp Funston, Fort Riley, Kan.

Dec. 18, 1917.

Lieut.-Col. J. L. Shepard, the division surgeon of the Eighty-Ninth Division, is in the East on a short leave of absence, during which time he intends to visit some of the other cantonments and come back through Washington, D. C. Lieut.-Col. Frank Weed is acting division surgeon during his absence.

The following promotions have occurred in this division since its organization until date: F. W. Weed, major, M. C., to lieutenant-colonel, M. C.; Capts. C. S. McGinnis, G. W. Newell, B. Ffoulkes, J. D. Bartlett and R. H. Meade to be majors; Lieuts. C. K. Barclay, W. L. Hall, O. L. Garlinghouse, L. E. Toney, C. C. Johnson, L. G. Harney, W. T. Cullion, P. K. Sauer, B. C. Dorset, F. M. Manson, J. G. Janney, W. B. Heagerty, C. E. Jenkins, C. Powers, Samuel Adams, G. E. Eggloff, C. M. Fuson, W. C. Kent, A. E. Davenport, D. D. Gill, J. H. Kirkham and W. A. Beckemeyer to be captains.

DISEASE CONDITIONS AMONG TROOPS IN THE UNITED STATES

Extracts from Telegraphic Reports Received in the Office of the Surgeon-General for the Week Ending Dec. 14, 1917

1. Total strength of troops in United States as reported......1,001,318
    Annual admission rate per 1,000 (disease only)......... 1,729.7
    Non-effective rate (all divisions) 43
2. National Guard, strength (divisions in United States)...... 367,153
    Annual admission rate per 1,000 all divisions (disease only) 1,757.7
    Non-effective rate all divisions (all causes) 48.6

Divisions showing admission rate for disease higher than average: Camps Bowie, Kearny, Doniphan, Cody, Wheeler and Shelby.

Divisions showing non-effective rate all causes higher than average: Camps Bowie, Kearny, Wheeler, Beauregard, Shelby, Cody and *Doniphan.*

3. National Army, strength (divisions in United States)..... 440,833
    Annual admission rate per 1,000 all divisions (disease only) 1,887.5
    Non-effective rate all divisions (all causes) 40.4

Divisions showing admission rate for diseases higher than average: Camps Travis, Pike, Zachary Taylor, Funston, Dodge and Dix.

Divisions showing non-effective rate all causes higher than average: Camps Funston, Travis, Pike, Dodge, Zachary Taylor, Jackson, Lee and Lewis.

4. Venereal Disease: *69.7*
    Annual admission rate Regulars in United States *44.6*
    Annual admission rate National Guard (divisions in U. S.).. *74.3*
    Annual admission rate National Army (divisions in U. S.)..

National Guard divisions having rate above average: Camps Logan, Wheeler, Sevier, Bowie, Doniphan, Wadsworth, Hancock and *Shelby.*

National Army divisions having rate above average: Camps *Dix,* Upton, Jackson, Lee, Travis and Dodge.

.... 611

5. Number of cases of pneumonia *114*
    Highest number in any one division (36th) 86

Number of cases of meningitis 30

Highest number in any one division (81st) ....

6. NEW CASES OF SPECIAL DISEASES REPORTED DURING THE WEEK ENDING DEC. 14, 1917

Division	Pneumonia	Dysentery	Malaria	Venereal	Paratyphoid	Typhoid	Measles	Meningitis	Scarlet fever	Deaths	Strength of Command
27th, Wadsworth...	2	...	...	36	..	..	12	..	..	2	31,216
28th, Hancock......	1	...	...	28	..	..	2	1	..	1	30,373
29th, McClellan.....	...	...	...	13	..	..	15	1	..	0	26,915
30th, Sevier.........	20	...	...	38	..	..	42	6	..	16	27,066
31st, Wheeler.......	51	...	3	30	..	..	8	1	..	21	22,418
32d, MacArthur....	5	...	...	10	..	..	62	..	2	1	27,036
33d, Logan........	4	...	1	40	..	..	36	..	..	1	26,957
34th, Cody..........	42	...	...	11	..	..	116	1	1	7	25,166
35th, Doniphan.....	22	...	1	31	..	..	237	6	5	12	25,335
36th, Bowie.........	114	...	...	34	..	..	36	9	..	61	25,971
37th, Sheridan......	1	...	...	4	..	..	26	..	..	1	23,948
38th, Shelby........	17	...	2	24	..	..	107	..	..	17	27,220
39th, Beauregard...	10	...	5	16	..	..	29	3	..	22	23,097
40th, Kearny........	5	...	...	12	..	..	320	2	1	3	24,105
76th, Devens......	4	...	...	24	..	..	45	..	..	1	27,821
77th, Upton.........	2	...	...	91	..	..	10	..	..	0	30,712
78th, Dix............	5	...	...	87	..	..	9	..	2	1	19,635
79th, Meade.........	6	...	...	41	..	..	68	4	1	0	33,762
80th, Lee............	16	...	...	75	..	..	127	..	..	2	32,771
81st, Jackson.......	37	...	1	46	..	..	91	30	..	27	18,276
82d, Gordon.......	9	...	...	23	..	..	74	1	..	2	28,573
83d, Sherman......	53	...	...	37	..	..	19	5	..	5	32,596
84th, Taylor........	4	1	...	26	..	..	130	5	..	7	22,818
85th, Custer........	6	...	...	22	..	..	75	2	..	1	24,124
86th, Grant...	6	...	1	5	..	..	37	..	..	1	21,892
87th, Pike...........	54	1	3	22	..	..	714	2	79	15	29,751
88th, Dodge.........	5	...	...	34	..	..	36	..	4	3	15,767
89th, Funston......	6	...	2	9	..	..	289	6	..	13	26,113
90th, Travis........	77	...	...	65	..	..	526	..	..	15	29,610
91st, Lewis.........	4	...	...	23	..	..	1	1	4	4	26,579

7. ANNUAL RATE PER THOUSAND FOR SPECIAL DISEASES

	Regulars, U. S. Army, in U. S. only, 1916	Regulars in U. S., Week Ending Dec. 14, 1917	National Guard, All Camps, Week Ending Dec. 14, 1917	National Army, All Camps, Week Ending Dec. 14, 1917
Pneumonia..............	2.59	6.8	41.6	31.6
Dysentery..............	3.97	2.6	0.0	0.2
Malaria..................	12.52	1.3	1.7	0.8
Venéreal.................	91.00	69.7	44.6	74.3
Paratyphoid............	0.31	0.0	0.0	0.0
Typhoid..................	0.21	0.3	0.0	0.0
Measles..................	20.29	38.6	149.8	265.5
Meningitis..............	0.29	0.0	4.2	6.6
Scarlet fever...........	0.59	6.5	1.1	10.6

ORDERS TO OFFICERS OF THE MEDICAL CORPS

To Washington, D. C., General Engineering Depot, for duty, and on completion to return to his proper station, Lieut. EDGAR A. BOCOCK.

To Camp Grant, Rockford, Ill., and report in person to the commanding general, for duty, Major GARFIELD L. McKINNEY.

To Washington, D. C., and report to the Surgeon-General of the Army for instruction, Col. ALLEN M. SMITH.

To Camp Sherman, Chillicothe, Ohio, to deliver a course of lectures on camp sanitation, and on completion to return *to his proper station*, Capt. J. GILMORE.

To Washington, D. C., and report to the Surgeon-General of the Army for consultation, and on completion to return *to his proper station*, Major THOMAS D. WOODSON.

To Camp Devens, Ayer, Mass., Camp Upton, L. I., N. Y., Camp Dix, Wrightstown, N. J., to inspect the work of tuberculosis boards, and on completion *to his proper station*, Col. GEORGE K. BUSHNELL.

To Camp Sevier, Greenville, S. C., to report in person to the commanding general, Thirtieth Division, for duty, Lieut. HENRY T. SCHIFFLEY.

To Camp Travis, San Antonio, Texas, Camp Doniphan, Fort Sill, Okla., Camp Bowie, Fort Worth, Texas, Camp Arthur, Waco, Texas, Camp Logan, Houston, Texas, Camp Cody, Deming, N. M., to inspect the laboratory service with special reference to its adequacy for the necessary board of health work in the control of epidemic diseases, and on completion *to his proper station*, Major CLARENCE J. COLE.

To New York City, for temporary duty pertaining to the assembling of the branch of the Division of Finances and Supplies for the Medical Department, and on completion *to return to his proper station*, Col. HENRY D. SNYDER.

To Fort Oglethorpe, and report in person to the commandant, Medical Officers' Training Camp, Camp Greenleaf, for the purpose of organizing and commanding Hospital Train No. 3, Major LAMPHEAR W. WEBB, Jr.

To Fort Benjamin Harrison, Ind., and report in person to the commanding officer of that post for the purpose of commanding Hospital Train No. 2, Major ALEXANDER W. WILLIAMS.

To Fort Benjamin Harrison, Ind., and report in person to the commanding officer of that post for the purpose of commanding Hospital Train No. 3, Major HARRY N. KERNS.

To Fort Benjamin Harrison, Ind., and report in person to the commanding officer of that post for the purpose of commanding Hospital Train No. 4, Major LEOPOLD MITCHELL.

To Camp Sherman, Chillicothe, Ohio, for temporary duty, and on completion *to his proper station*, Major EARL H. BURNS.

To Washington, D. C., and report in person to the Surgeon General of the Army for consultation, and on completion to return *to his proper station*, Lieut.-Col. THOMAS L. RHOADS.

To Camp Doniphan, Fort Sill, Okla., to inspect, and on completion to his proper station, Col. DEANE C. HOWARD.

To Newport News, Va., and report in person to the commanding general, Provisional Division, for duty as divsion surgeon, Lieut.-Col. LARUS D. CARTER.

To Camp MacArthur, Waco, Texas, and report in person to the commanding general, Thirty-Second Division, for duty in connection with the organization and training of the Medical Department, and on completion *to Camp Logan*, Major SAMUEL S. CREIGHTON.

To Hoboken, N. J., and report in person to the commanding general, for duty, Major CHARLES T. KING.

To Richmond, Va., to deliver sixteen lectures on Military Surgery and Medicine, at the Medical College of Virginia, and on completion *to his proper station*, Col. LOUIS J. LA GARDE.

To Camp Devens, Ayer, Mass., and report in person to the commanding general, for duty, Lieut. JOHN S. C. FIELDON, Jr.

To Fort Oglethorpe, and report in person to the commandant, Medical Officers Training Camp, Camp Greenleaf, for duty, Lieut. CLARENCE P. BAXTER.

To Camp Jackson, Columbia, S. C., to make special sanitary inspection, and on completion to his proper station, Lieut.-Col. EDWARD B. VEDDER.

To New York City, Rockefeller Institute, for instruction, and on completion to his proper station, Lieut. EDWARD W. DOUGLAS.

ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

Alabama

To Camp Bowie, Fort Worth, Texas, base hospital, Lieut. CHARLTON S. HARRIS, Birmingham; from Birmingham, Lieut. LEO C. WOODS, Birmingham.

To Camp Devens, Ayer, Mass., base hospital, from Boston, Lieut. HENRY W. GRADY, Birmingham.

To Camp Doniphan, Fort Sill, Okla., base hospital, Lieut. WILLIAM N. BEDDOW, Birmingham.

To Camp Jackson, Columbia, S. C., base hospital, Lieut. LUTHER E. WILSON, Birmingham.

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieut. HARRY R. COGBURN, Bayou Labatre.

To Fort Oglethorpe for instruction, Lieut. ROBERT F. FENNELL, Guntersville; from University of Pennsylvania, Philadelphia, Lieut. JAMES L. BOWMAN, Union Springs.

To Philadelphia, Pa., for intensive training, Lieut. TOOMBS LAWRENCE, Tuscaloosa.

Arizona

To Camp Pike, Rockford, Ill., to examine the command for mental and nervous diseases, from Ann Arbor, Mich., Capt. HARRY R. CARSON, Phoenix.

Arkansas

To Camp Cody, Deming, N. M., base hospital, from Fort Riley, Lieut. SYLVESTER DOGGETT, Bradford.

To Camp Hancock, Augusta, Ga., motor mechanic regiments, from Montgomery, Ala., Lieut. WYLIE R. FELTS, Judsonia.

To Camp McClellan, Anniston, Ala., for duty, from Fort Oglethorpe, Lieut. ALBERT W. RYE, London.

To Camp Pike, Little Rock, Ark., base hospital, Lieut. ALEXANDER E. HARRIS, Little Rock.

To Fort Oglethorpe, for instruction, from Washington University, St. Louis, Lieut. JAMES W. BUTTS, Helena.

To New York City, New York Post-Graduate Medical School, for instruction in urology and dermatology, from Fort Oglethorpe, Lieut. ARLEY D. CATHEY, Wilson.

California

To Baltimore, Md., Johns Hopkins School, for duty, from Camp Meade, Lieut. PAUL WEGSFORTH, San Diego.

To Camp Bowie, Fort Worth, Texas, to examine the command for mental and nervous diseases, from Camp Lee, Petersburg, Major JAMES R. MOORE, Los Angeles.

To Camp Lewis, American Lake, Washington, D. C., base hospital, Major DUDLEY FULTON, Los Angeles.

To Fort Douglas, Utah, for duty, Lieut. LOUIS N. ANDERSON, Inglewood.

To Fort Oglethorpe, for instruction, from New York City, Lieut. ORAL B. BOLIBAUGH, Los Angeles.

To Fort Riley, for instruction, Major WILLIAM W. ROBLEE, Riverside.

To Hoboken, N. J., base hospital, No. 30, from New York City, Major ALANSON WEEKS, San Francisco.

To Los Angeles, Calif., for orthopedic instruction, Lieut. GUY L. KAY, Wilmington.

To Minneapolis, Minn., University of Minnesota, for duty, Capt. EDWARD C. MOORE, Los Angeles.

To his home and honorably discharged *on* account of being physically disqualified for active service, from Fort McPherson, Ga., Capt. JOHN R. WALKER, Fresno.

Colorado

To Camp Custer, Battle Creek, Mich., for duty, from Fort Riley, Lieut. ARTHUR J. HOLMQUIST, Denver.

To Fort Riley, for instruction, Capt. CHARLES E. ELLIOTT, Victor.

To Indianapolis, Ind., for duty, from *Fort Sill, Okla.,* Lieut. WILLIAM W. JONES, Denver.

To San Antonio, Tex., Aviation School, Kelly *Field,* from Aviation School, Mt. Clemens, Mich., Lieut. *JOHN* W. THOMPSON, Pueblo.

Connecticut

To Camp Bowie, Fort Worth, Tex., base hospital, *from* New York City, Capt. OTTO G. WIEDMAN, Hartford.

To Camp Cody, Deming, N. M., base hospital, Lieut. MARK T. SHEEHAN, Wallingford; *from* Fort Riley, *Lieut. JAMES* M. MURPHY, Hartford.

To Camp Gordon, Atlanta, Ga., base hospital, Lieut. DANIEL W. PORTER, New Haven.

To Camp Jackson, Columbia, S. C., base hospital, *from* Fort Oglethorpe, Lieut. RALPH A. RICHARDSON, Bristol.

To Camp Lee, Petersburg, Va., base *hospital,* from Boston, Lieut. FREDERICK K. HERPEL, Hartford.

To Camp McClellan, Anniston, Ala., for duty, from Fort Oglethorpe, Lieut. LEVERNE HOLMES, *Manchester.*

To Camp Meade, Annapolis Junction, Md., to examine *the command* for tuberculosis, from Walter Reed General Hospital, Lieut. ELLIOTT H. METCALF, Rockville.

To Fort Oglethorpe, for instruction, Lieuts. DWALD E. OLESON, Bridgeport; WINDSOR F. REARDON, *Hartford.*

To Washington, D. C., for duty, Capt. JOHN H. ROSE, Hartford.

Delaware

To Camp Hancock, Augusta, Ga., *motor mechanic regiments,* from Montgomery, Ala., Lieut. BRUCE H. BEELER, *Wilmington.*

District of Columbia

To Camp Devens, Ayer, Mass., base hospital, from Boston, Lieuts. BURGH S. BURNET, EDWARD B. *MACON, Washington.*

To Camp Meade, base hospital, from Philadelphia, Lieut. JOEL A. TILTON, Washington.

To Camp Travis, Fort Sam Houston, Texas, base hospital, Capt. FREDERICK D. OWSLEY, Washington.

To Fort McPherson, Ga., Base Hospital No. 13, from Harvard Medical School, Lieut. JOHN R. DeVELLING, Washington.

To Fort Oglethorpe, for instruction, from Chicago, Lieut. GRAFTON D. TOWNSHEND, Washington, from *New York City*; Lieut. JAMES H. ALLEN, for duty, Lieut. JAMES A. CAHILL, Jr., Washington.

Florida

To New York City, Base Hospital No. 116, from Fort Oglethorpe, Lieut. JOHN HALLIDAY, Tampa.

Georgia

To Camp Bowie, Fort Worth, Tex., base hospital, from Tallapoosa, Ga., Lieut. LEMUEL J. JOHNS, Tallapoosa.

To Camp Cody, Deming, N. M., base hospital, Lieut. CLAUD T. KEY, Atlanta.

To Camp Hancock, Augusta, Ga., motor mechanic regiments, from Montgomery, Ala., Lieut. JOHN M. BEGGS, Paro.

To Camp Jackson, Columbia, S. C., base hospital, Major Stewart R. Roberts, Atlanta; from Atlanta, Ga., Lieut. ALLEN H. BUNCE, Atlanta.

To Camp Joseph E. Johnston, Jacksonville, Fla., base hospital, Lieut. ANDREW L. WEST, Macon.

To Camp Lee, Petersburg, Va., base hospital, from Philadelphia, Lieut. EVERARD A. WILCOX, Augusta.

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieut. SAMUEL W. HARTWELL, New Sharon.

To Camp Taylor, Louisville, Ky., for duty, from Fort Oglethorpe, Lieut. RICHARD BINION, Sparta.

To Fort Oglethorpe, Hospital Train No. 28, from Fort Oglethorpe, Lieut. ROBERT H. McDONALD, Bullockville; for instruction, Lieut. HUGH K. PHILLIPS, Santee; from New York City, Lieut. HUGH I. BATTEY, Atlanta.

To Lake Charles, La., Signal Aviation School, *Gerstner Field,* from Aviation Mobilization Camp, Montgomery, Ala., Lieut. EARL K. LAZENBY, Camak.

To Philadelphia, Pa., for intensive training, Lieut. MALCOLM D. CLAYTON, Milledgeville.

Illinois

To Ann Arbor, Mich., for intensive training in his specialty, Lieuts. JAMES K. POLLOCK, Elgin; WALTER C. COOK, Peoria.

To Army Medical School, for duty, Lieut. HARRY T. SWANSON, Chicago.

To Brooklyn, N. Y., First Cavalry Armory, for duty, from New York City, Lieut. MARCUS H. *HOBART, Chicago.*

To Camp Custer, Battle Creek, Mich., for duty, from Fort Riley, Lieut. GEORGE W. STEELY, *Louisville.*

To Camp Doniphan, Fort Sill, *Okla.,* base hospital, Lieut. CLIFFORD WELLS, Chicago.

To Camp Gordon, Atlanta, Ga., base hospital, from Fort Oglethorpe, Capt. JOHN R. HOWE, Peotone.

To Camp Kearny, Linda Vista, Calif., for duty, from Fort Sill, Lieut. THOMAS S. GREEN, Chicago.

To Camp Lee, Petersburg, Va., base hospital, from Boston, Lieut. HARVEY E. WEBB, Chicago.

To Camp Logan, Houston, Texas., base *hospital,* from Camp Logan, Lieut. *WALTER D. HALL,* Chicago; *for* duty, *from* Camp Logan, Lieut. THOMAS J. RIACH, Kankakee.

To Camp McClellan, Anniston, Ala., for duty, from Fort Oglethorpe, Lieut. WILLIAM S. BROWN, Cairo.

To Camp Meade, Md., base hospital, from Philadelphia, Lieut. SAMUEL B. CARY, Cairo.

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieut. HERMAN C. TIETZE, West Salem.

To Fort McHenry, Md., for temporary duty, from Fort Oglethorpe, Lieut. ROBERT S. SALK, Chicago.

To Fort McPherson, Ga., base hospital, from Camp Lee, Lieut. WILSON K. DYER, Kankakee.

To Fort Oglethorpe, for duty, Lieut. LOUIS C. SENDEL, Columbia; *for instruction,* Lieuts. JOHN G. FROST, PERRE A. STEELE, Chicago; EVANDER D. TAYLOR, E. Moline; *from* Philadelphia, Lieut. MANDEL A. I. *COHEN, Chicago; Hospital* Train No. *28,* from Fort Oglethorpe, Lieut. ALFRED C. WENDT, Chicago.

To Fort Riley, for instruction, Capt. HALL WHITTAKER, Mound City; Lieuts. THEODORE F. BUTZOW, OSCAR CLEFF, Chicago; ALONZO M. EDWARDS, Marion; from Chicago, Lieut. ORLANDO F. SCOTT, Chicago; *Evacuation* Hospital No. 1, for duty, from Fort Riley, Lieut. ALEXANDER S. ROCHESTER, Chicago.

To New York City, for instruction in orthopedic surgery, Lieut. IRWIN H. CUTLER, Chicago.

To Philadelphia, Pa., for intensive training, Capt. ROMNEY M. RITCHEY, Elgin.

To San Antonio, Tex., Aviation School, Kelly Field, from Mt. Clemens, Mich., Lieut. HARRY E. BROWN, Peoria.

To Washington, D. C., to report to the Surgeon-General *for* instruction, and upon completion to Camp Joseph E. Johnston, Jacksonville, Fla., to examine the command for *mental* and nervous diseases, from Fort Sheridan, Capt. CHARLES *RICKSHER,* Kankakee; St. Elizabeth's Hospital, from Fort Sheridan, Lieut. WALTER A. FORD, Kankakee.

To his home and honorably discharged *on account* of being physically *disqualified* for active service, Fort Oglethorpe, Lieut. GEORGE L. RATHBUN, Galesburg.

To his home and the inactive list, from Fort Riley, Lieut. EDWARD A. CORCORAN, Chicago.

Indiana

To Camp McClellan, Aniston, Ala., for *duty, from Fort* Oglethorpe, Lieut. *JOHN* J. CONNELLY, Rockville.

To Camp Meade, base hospital, from Boston, Lieut. HASKETT L. CONNER, Indianapolis.

To Chickamauga Park, Ga., Reorganization Camp, *from Columbus,* Ohio, Lieut. CLAUDE D. HOLMES, Indianapolis.

To Fort McHenry, Md., for temporary duty, from Allentown, Lieut. CLIFFORD R. HOY, Syracuse.

To Fort McPherson, Ga., Hospital Unit "1," from Fort Oglethorpe, Lieut. CLARENCE L. BOCK, *Kokomo.*

To Fort Oglethorpe, for instruction, from Fort McPherson, Lieut. JOHN M. LEE, Indianapolis.

To Lake Charles, La., Signal Corps, Aviation School, Gerstner Field, from Montgomery, Ala., Lieut. JULES L. BIERACH, Salem.

To Newport News, Va., for duty, from Fort Snelling, Minn., Lieut. KENNETH L. CRAFT, Indianapolis.

To New York City, for intensive training, Capt. WILLIAM W. SICHELBERGER, Evansville.

To his home and honorably discharged from Fort Oglethorpe, Lieut. *BROES* S. HORNE, Gas City.

Iowa

To Boston, Mass., Harvard Medical School, for instruction in orthopedic surgery, Capt. EDWIN E. HOBBY, Iowa City.

To Camp Cody, Deming, N. M., base hospital, from Fort Riley, Lieut. GEORGE J. WENZLICK, Iowa City.

To Camp Doniphan, Fort Sill, Okla., to examine the *command* for mental and nervous diseases, from Camp Doniphan, Capt. THOMAS J. HELDT, Cedar Rapids; for duty, from Fort Riley, Lieut. RAYMOND A. SEILER, Blairstown.

To Camp Joseph E. Johnston, base hospital, from Fort Riley, Lieut. SYDNER D. MAIDEN, Council Bluffs.

To Camp Lewis, American Lake, Wash., *for duty, from* Fort Riley, *Lieut. WILLIAM H.* THOMAS, McGregor.

To Camp Shelby, Hattiesburg, Miss., to examine the command for mental and nervous diseases, from Washington, D. C., Lieut. PERCY B. BATTEY, Independence.

To Dayton, Ohio, Wilbur Wright Station, Aviation Supply Depot, McCook Field, from Montgomery, Ala., Lieut. ROSCOE D. TAYLOR, Spencer.

To Fairfield, Iowa, for duty, from Fort Riley, Lieut. ROY A. McGUIRE, Brighton; Jefferson County Hospital, Lieut. FRANK R. MEHLER, New London.

To Fort Oglethorpe, for instruction, Capt. CHARLES F. SMITH, Des Moines; from Camp Dodge, Capt. FRANCIS LA PISANA, Des Moines; from Philadelphia, Lieuts. THOMAS E. THOMSEN, Charter Oak; THOMAS R. GITTENS, Iowa City.

To Fort Riley, for instruction, Lieut. ELMER P. WEITH, Clinton; Evacuation Hospital No. 1, for duty, from Fort Riley, Lieut. LEO E. SHAFER, Walcott.

To Philadelphia, Pa., for intensive *training,* Capt. SAMUEL C. LINDSAY, Independence; Lieut. FISHER B. E. MILLER, Cherokee.

To his home and honorably discharged on account of *being physically* disqualified for active service, from Fort Riley, Lieut. THOMAS W. KING, *Maloy.*

Kansas

To Camp Cody, Deming, N. M., base hospital, *from* Fort Riley, Lieut. BEN H. DAY, Hugoton.

To Camp Hancock, Augusta, Ga., motor mechanic regiments, from Montgomery, Ala., Lieut. THOMAS S. VENARD, Ness City.

To Camp Lewis, American Lake, Wash., for duty, from Fort Riley, Lieut. ODUS LISTON, Hudson.

To Camp McClellan, Anniston, Ala., for duty, from Fort Oglethorpe, Lieut. GEORGE W. POTTS, New Lancaster.

To Fort Leavenworth, Kan., for duty, from *Fort Riley*, Lieut. MATTHEW H. KEEFER, Kansas City.

To Fort Riley, for duty, from Camp Funston, Lieut. LEONIDAS T. BROWN, Spearville; for instruction, Lieut. BOYD E. EYE, Talmage.

To Newport News, Va., to re-examine troops for tuberculosis, from Camp Meade, Lieut. JACOB H. *HALDEMAN*, *Paola*.

Kentucky

To Camp Cody, Deming, N. M., base hospital, Lieut. HARRY E. McCORD, Ludlow.

To Camp Custer, Battle *Creek*, Mich., *for duty*, from Fort Riley, Lieuts. THEODORE SALLEE, Covington; QVERTON H. SAVAGE, Jackson; EUGENE F. BEARD, Lexington.

To Camp Hancock, Augusta, Ga., motor mechanic regiments, from Montgomery, Ala., Lieut. ROBERT A. IRVIN, Clay City.

To Fort Oglethorpe, for instruction, Capt. BENJAMIN D. CHOATS, Louisville; Lieuts. MARK E. CALDWELL, ROBERT C. FLEMING, SAMUEL E. STANLEY, Louisville.

To Rockefeller Institute, for instruction, and on completion to Fort Oglethorpe, for instruction, Capt. STEPHEN C. McCOY, Louisville.

To Washington, D. C., for conference with the Surgeon-General, from Bowling Green, Major ARTHUR T. McCORMACK, Bowling Green; from American University, Washington, D. C., Lieut. FLOYD K. FOLEY, Central City.

Louisiana

To Camp Cody, Deming, N. M., base hospital, from Fort Riley, Lieut. HENRY W. A. LEE, Baton Rouge.

To Fort Oglethorpe, for instruction, Lieut. ALBERT C. JACKSON, New Orleans.

To Newport News, Va., to re-examine the troops for tuberculosis, from Camp Meade, Lieut. DELANE S. CALHOUN, Ruston.

Maryland

To Albany, N. Y., for duty, Lieut. DANIEL G. SMITH, Baltimore.

To Boston, Mass., for duty, and on completion to his proper station, Major JAMES BORDLEY, Baltimore.

To *Camp Lee*, Petersburg, Va., base hospital, from Boston, Lieut. ARTHUR M. BACON, Baltimore.

To Camp Meade, Admiral, Md., base hospital, Lieut. BENJAMIN B. BRUMBAUGH, Denton.

To Camp Sheridan, Montgomery, Ala., *base* hospital, Capt. HENRY C. REIK, Baltimore.

To Fort Oglethorpe, for instruction, Lieuts. JOSEPH SALAN, HOWARD H. STANSBURY, Baltimore; from duty as a private at Camp Meade, Lieut. MAURICE FELDMAN, Baltimore; *from* Fort *Sam Houston*, Lieut. NATHAN WINSLOW, Baltimore; *from* New *York* City, Lieut. ALLEN D. LAZENBY.

To New York City, New York Post-Graduate Medical School, for instruction in urology and dermatology, Lieut. AUSTIN H. WOOD, Baltimore.

Maine

To Camp Lee, Petersburg; Va., for duty, from Camp Lee, Lieut. DUDLEY D. KALLOCK, Portland.

To Camp Meade, Md., base hospital, from Boston, Lieut. HAROLD D. ROGERS, Hampden.

To Fort Oglethorpe, for instruction, Lieut. ARTHUR H. PARCHER, Ellsworth.

To Newport News, Va., for duty, from Fort Oglethorpe, Capt. ADELBERT F. WILLIAMS, Phippsburg; Lieut. GILMAN H. CLOUGH, Dexter.

Massachusetts

To Ann Arbor, Mich., for intensive training in his specialty, Lieut. CHARLES E. RODERICK, Raynham Center.

To Boston, Mass., for intensive training in his specialty, from Camp Devens, Capt. DOUGLAS A. THOM, Worcester; from duty as a private at Camp Devens, *Lieut.* FRANCIS S. *CALDICOTT*; *Harvard* Medical School, for instruction in orthopedic surgery, Lieut. ROBERT J. COOK, *Boston*.

To Brooklyn, N. Y., for duty, from Boston, Capt. DOUGLAS A. THOM, Worcester.

To Camp Devens, Ayer, Mass., base hospital, *from* Boston, Lieut. OTTIS L. GRAHAM, Boston; from Plattsburg, Lieut. WILLIAM F. RYAN, Lowell.

To Camp Dix, Wrightstown, N. J., Camp Upton, L. I., N. Y., Camp Devens, Ayer, Mass., to inspect and on completion to his proper station, Major ELLIOTT G. BRACKETT, Boston.

To Camp Hancock, Augusta, Ga., motor mechanic regiments, from Aviation Mobilization Camp, *Ala.*, *Capt.* CHARLES DUDLEY, Kingston.

To Camp Jackson, Columbia, S. C., base *hospital*, Lieut. GUY McM. PARKHURST, Cambridge.

To Camp McClellan, Anniston, Ala., to examine the command for nervous and mental diseases, from Camp McClellan, Capt. DONALD R. GILFILLAN, Worcester; from duty, from Fort Oglethorpe, Lieut. LOUIS I. SKIRBALL, *Revere*.

To Camp Mills, Garden City, L. I., N. Y., for duty, from Boston, Capt. ROBERT F. SOUTHER, *Boston*.

To Camp Sheridan, Montgomery, Ala., base hospital, Lieut. JAMES A. KEENAN, Roslindale.

To Camp Wadsworth, Spartansburg, S. C., base hospital, *from* Camp McArthur, Capt. GEORGE D. HENDERSON, Jr., Holyoke.

To Fort Oglethorpe, for instruction, Lieuts. REUBEN L. LEVERTON, Boston; ARTHUR GANLEY, Methuen; JOHN M. CLAFFY, Springfield; JOSEPH J. SKIRBALL, Revere; from Boston, Lieut. JOHN B. WEBSTER, New Bedford; from New York City, Lieut. ALFRED A. FENTON, Norwood.

To New York City, for duty, Lieut. GEORGE D. PACKARD, Jr., Boston; for intensive training, Lieut. APPLETON H. PIERCE, Leominster; for instruction in urology and dermatology, Lieut. EVERETT A. MERRILL, Lynn.

To Philadelphia, New York City, Boston, to standardize courses in orthopedic surgery, and on completion to his proper station, Capt. ALEXANDER S. BEGG, Boston.

Mexico

To Fort Oglethorpe, for instruction, from New York City, Lieut. OTTO R. BROWN, Tampico, Tamaulipas.

Michigan

To Camp Cody, N. M., base hospital, from *Ann Arbor*, Major FREDERICK H. NEWBERRY, Detroit.

To *Camp Custer*, Battle Creek, Mich., *base hospital*, *from Camp* Custer, Capt. ORTON H. CLARK, Kalamazoo.

To Camp Hancock, Augusta, Ga., motor mechanic regiments, from Montgomery, Ala., Lieut. WILLIAM H. MEDDAUGH, Sandcreek.

To Camp McClellan, Anniston, Ala., to examine the command for nervous and mental diseases, from Camp McClellan, Lieut. ARTHUR R. TIMME, Detroit.

To Camp Shelby, Hattiesburg, Miss., *to* examine the command for mental and *nervous* diseases, *from Camp* Shelby, *Lieut.* RAY S. MORRISH, Flint.

To Fort Oglethorpe, for instruction, from Camp Jackson, Capt. FREDERICK W. BAESLACK, Detroit; *from* St. Louis, Capt. WILLIAM C. McCUTCHEON, Cassopolis.

To Fort Riley, *for* instruction, *from Camp* Custer, Mich., Lieut. SPENCER VAN BARNUM, Coloma; for instruction, Lieut. EDWIN H. CHAUNCEY, St. Albion.

To New York, N. Y., Chicago, Ill., Covington, Ky., for inspection and perfection of roentgen-ray apparatus, and on completion to his proper station, Major JAMES T. CASE, Battle *Creek; New* York Post-Graduate Medical School, for instruction in urology and dermatology, Lieut. DAUNE W. CRANKSHAW, Lawrence.

To San Antonio, Texas, Aviation School, Kelly Field, for duty, from Mount Clemens, Capt. HOWARD W. STUCH, Allegan.

Minnesota

To Camp Hancock, Augusta, Ga., motor *mechanic regiments, from* Montgomery, Ala., Lieut. BENJAMIN W. KELLY, Aitkin.

To Camp Sheridan, Montgomery, Ala., to examine the command to eliminate the mentally unfit, from Camp Sheridan, Lieut. WALTER I. LILLIE, Rochester.

To Fort Oglethorpe, *for instruction*, from St. Louis, Capt. OLIVER E. STEWART, Bricelyn; from *Philadelphia*, Lieut. ADOLPH M. HANSON, Faribault.

To Philadelphia, Pa., for intensive training, Lieut. EDWARD J. ENGBERG, St. Paul.

To Rochester, Minn., Mayo Clinic, for *intensive instruction in* anesthesia and surgery, Major EDWARD S. JUDD, Rochester.

To Rockefeller Institute, New York City, *for instruction*, *and* on completion to Hoboken, N. J., for temporary duty, from Fort Oglethorpe, Lieut. CLIFFORD C. LECK, Austin.

Mississippi

To Camp Bowie, Fort Worth, Texas, base *hospital*, Lieut. HUGH C. DONSON, Vicksburg.

To Camp McClellan, *Anniston, Ala.*, *base* hospital, *from* Fort Oglethorpe, Lieut. JOHN S. ADAMS, Bay St. Louis.

To *Philadelphia, Pa.*, for intensive training in his specialty, Lieut. THOMAS G. CLEVELAND, Meridian.

To Rochester, N. Y., for duty, from Boston, Lieut. EGBERT H. WESSON, New Albany.

Missouri

To Arcadia, Fla., Signal Corps, Aviation School, Dorr Field, for duty, *from* Montgomery, Ala., *Lieut.* FRANCIS X. *HARTIGAN*, St. Joseph.

To Army Medical School, Washington, D. C., for duty, from Fort Clark, Lieut. CHARLES R. OZIAS, Kansas City.

To Austin, Texas, Aviation Section, Signal Corps, for duty, from *Montgomery*, *Ala.*, *Lieut.* *JOHN H. TIMBERMAN*, *Marston*.

To Camp Cody, Deming, N. M., base hospital, Lieut. JOHN L. TIERNEY, St. Louis.

To Camp Custer, Battle Creek, Mich., for duty, from Fort Riley, Lieut. JOHN A. CORN, Amoret.

To Camp Green, Charlotte, N. C., for duty, from *Fort Oglethorpe*, Lieut. ROBERT R. CUTLER, Berger.

To Camp Hancock, Augusta, *Ga.*, motor mechanic regiments, from Montgomery, Ala., Lieuts. EDWARD C. WITTWER, Mountain Grove; FRANK HEDGES, Pattonsburg.

To Camp McClellan, Anniston, Ala., to examine the command *for* nervous and mental diseases, from Camp McClellan, Lieut. CHARLES H. BURDICK, St. Louis.

To Fort Oglethorpe, for instruction, from Boston, Lieut. LEE *H.* WINEMILLER, Farley.

To Fort Riley, for instruction, Lieuts. EDWIN C. FUNSCH and REUBEN H. WI[illegible]S, St. Louis.

To Milwaukee, Wis., Light Horse Squadron Armory, for duty, from Harvard Medical School, Lieut. NOBLE D. McCORMACK, St. Louis.

To New York City, for duty, and on completion to his proper station, Major HANAU W. LOEB, St. Louis; for instruction in orthopedic surgery, from Camp Doniphan, Capt. JOHN P. BEESON, South West City.

To Philadelphia, Chicago and St. Louis, to give instructions in oral and plastic surgery, and to Camp Taylor, Louisville, Ky., and Camp Sherman, Chillicothe, Ohio, for inspection and instruction, and on completion to his proper station, Major VILRAY P. BLAIR, St. Louis; for instruction in orthopedic surgery, Capt. RALPH E. NIODRINGHAUS, St. Louis; for intensive training, Capt. WILLIAM A. EDLER, Lieut. CHARLES H. SHUMAKER, St. Louis.

Montana

To Camp Grant, Rockford, Ill., base hospital, Capt. ALBERT F. LONGEWAY, Great Falls.

To Camp Lewis, American Lake, Wash., for duty, from Fort Riley, BIGELOW P. BLACKSTONE, Lindsay.

To Camp McClellan, Anniston, Ala., for duty, from Fort Oglethorpe, Lieuts. JOSEPH C. DENNEY, Clydepark; CHARLES B. FLEISCHMANN, Froid; STACY T. NOLAND, Warmsprings.

To Fort Riley, for instruction, Capt. THOMAS A. MacKENZIE, Stacey.

Nebraska

To Camp Hancock, Augusta, Ga., motor mechanic regiments, from Montgomery, Ala., Lieut. IRVIN C. MUNGER, Lincoln.

To Fort Riley, for instruction, Lieut. ROBERT C. PERSON, Omaha.

To Newport News, Va., to reexamine the troops for tuberculosis, from Camp Meade, Md., Lieut. WILLIAM N. ANDERSON, Omaha.

Nevada

To Camp Custer, Battle Creek, Mich., for duty, from Fort Riley, Capt. LAWRENCE R. KNORR, Paradise Valley.

To Camp Hancock, Augusta, Ga., motor mechanic regiments, from Montgomery, Ala., Lieut. WILLIAM L. HOWELL, Gardnerville.

New Hampshire

To Camp Wheeler, Macon, Ga., for duty, from Fort Clarke, Major GEORGE V. FISKE, Manchester.

To Fort Oglethorpe, for instruction, Lieut. RALPH S. PERKINS, Exeter.

New Jersey

To Camp Doniphan, Fort Sill, Okla., base hospital, from Fort Oglethorpe, Lieut. FREDERIC H. THORNE, Greystone Park.

To Camp Lee, Petersburg, Va., base hospital, from Boston, Lieut. CHARLES E. BRENN, Camden.

To Camp McClellan, Anniston, Ala., for duty, from Fort Oglethorpe, Lieut. WILLIAM D. SAYRE, Red Bank.

To Camp Meade, Admiral, Md., for duty, from Fort Myer, Capt. ROBERT E. SOULE, Newark.

To Camp Taylor, Louisville, Ky., for duty, from Fort Oglethorpe, Lieut. JOSEPH BINDER, Jersey City.

To New York City, New York Post-Graduate Medical School, for instruction in urology and dermatology, Lieut. CHARLES RICH, Newark; from Fort Oglethorpe, Lieut. EDWARD GUION, Atlantic City.

New Mexico

To Columbus, for the special examination of tuberculosis, from Camp Wheeler, Lieut. *ORIN J. WHITCOMB, Raton.*

New York

To Albany, for duty, Major ARTHUR W. ELTING, Capts. LEMUEL W. GORHAM, Albany; CHARLES C. McMULLEN, Schenectady; Lieuts. CLARENCE F. GRAHAM, Albany; JOHN L. EDWARDS, Hudson.

To Army Medical School, Washington, D. C., for duty, from Camp Lee, Lieut. BENJAMIN J. SLATER, Rochester.

To Buffalo, Aviation Section, Signal Corps, as medical member of examining board and recruiting officer, Lieut. EDWARD F. MEISTER, Buffalo.

To Camp Bowie, Fort Worth, Texas, base hospital, Lieut. JOSEPH M. LINETT, Blackwell's Island; base hospital, Lieut. ROBERT L. LEVY, New York; to examine the command for mental and nervous diseases, from Camp Lee, Lieuts. SAMUEL W. HAUSMAN, Ogdensburg; WILLIAM G. DICKINSON, Oneonta.

To Camp Custer, Battle Creek, Mich., for duty, from Fort Riley, Lieut. WILLIAM J. JACOBS, Carthage; in base hospital, from Boston, Lieut. *WILLIAM T. SHIELDS*, Troy.

To Camp Devens, Ayer, Mass., base hospital, from Fort Ethan Allen, Vt., Capt. EDWARD G. CLIFTON, New York; from Plattsburg, Capt. WILMARTH S. BUCK, Plattsburg; from Boston, Lieuts. ARTHUR H. NYLEN, Brooklyn; CORNELIUS A. *DENEHY, New York.*

To Camp Dix, Wrightstown, N. J., for inspection, and on completion to his proper station, Capt. ALEC N. THOMSON, Brooklyn.

To Camp Doniphan, Fort Sill, Okla., to examine the command for mental and nervous diseases, from Camp Mills, Lieut. WARD W. MILLIAS, Rome.

To Camp Gordon, Atlanta, Ga., base hospital, from Fort Oglethorpe, Capt. JOSEPH MUIR, New York.

To Camp Hancock, Augusta, Ga., motor mechanic regiments, from Montgomery, Ala., Capts. CHARLES E. LONG, Buffalo; EDGAR S. BULLIS, Glen Falls; GUSTAVUS C. DARLINGTON, New York.

To Camp Lee, Petersburg, Va., base hospital, from Boston, Lieut. JOHN W. McKEEVER, Newburgh; from Philadelphia, Lieut. CARL C. YOUNT, New York.

To Camp McClellan, Anniston, Ala., for duty, from Fort Oglethorpe, Lieut. HARRY O. ZAMKIN, New York.

To Camp Meade, Md., base hospital, from Boston, Lieut. EDMUND B. SPAETH, Elmira.

To Camp Pike, Little Rock, Ark., base hospital, from Plattsburg Barracks, Lieut. HAROLD A. BENSON, Kings Park.

To Camp Sevier, Greenville, S. C., for duty, from Fort Riley, Major ANDREW McFARLANE, Albany; base hospital, Capts. EMIL ALTMAN, JOHN A. McCAFFERTY, New York.

To Camp Taylor, Louisville, Ky., for duty, from Fort Oglethorpe, Lieut. CONRAD A. RISSBERGER, Albany.

To Camp Upton, L. I., N. Y., base hospital, *from* Philadelphia, Lieut. GEORGE G. McELVARE, New York.

To Ebertz Field, Lonoke, Ark., for duty, from Montgomery, Ala., Lieut. PERRY L. HELMICK, New York.

To Fort McPherson, Ga., Hospital Unit B, Lieuts. SAMUEL D. BELL, JOHN C. MUTH, Yonkers.

To Fort Oglethorpe, for instruction, from New York City, Capts. KARL OSTERHAUS, Brooklyn; LEO B. MEYER, New York; Lieut. ANDREW W. MAHONEY, New York; for instruction, Lieuts. HAROLD M. WEINBERG, RAPHAEL WOLFE, Brooklyn; ARTHUR C. SMITH, Elmira; EDWARD A. FLYNN, ALEXANDER W. JACOBS, EDMOND H. O'DONNELL, ARTHUR W. URAN, New York City.

To Fort Porter, N. Y., Hospital Unit F., Lieut. FRANCIS J. HALEY, Buffalo; General Hospital No. 4, from Fort Niagara, Lieut. WILLIAM R. SEARS, New York.

To Fort Riley, Kan.; Camp Funston, Fort Riley, Kan.; Medical Officers' Training Camp, Fort Riley, Kan.; Fort Des Moines, Iowa; Camp Dodge, Des Moines, Iowa, base hospitals, and on completion to his proper station, Major PEARCE BAILEY, New York.

To Hoboken, N. J., for duty, from Camp McArthur, Major DANIEL A. SINCLAIR, New York; from Plattsburg Barracks, N. Y., Lieut. ISADORE SEFF, New York.

To Montgomery, Ala., Signal Corps, Aviation School, Taylor Field, for duty, from Montgomery, Ala., Lieut. MAX DOORIN, New York.

To New York City, Post-Graduate Medical School, for instruction in urology and dermatology, Capt. CLAYTON K. HASKELL, Rochester; from Fort Oglethorpe, Lieut. WILLIAM H. GOLDSTEIN, New York; for duty, Lieuts. FREDERICK C. FREED, JOSEPH L. McEVITT, *ARTHUR M. REICH, New York; from Camp Jackson*, Lieut. *JOSEPH S. BALDWIN, Brooklyn; Medical Supply Depot* for duty, Lieut. HENRY W. HAYNES, New York.

To Philadelphia, Pa., Aviation Section, Signal Corps, University of Pennsylvania, and on completion *to San Antonio, Texas*, U. S. Aviation School, Kelly Field, from Mineola, Capt. DONALD T. McPHAIL, New York; for temporary duty and on completion *to San Antonio, Texas*, from Forth Ethan Allen, Capt. JOHN D. GULICK, Schenectady; for intensive training in his specialty, Lieut. THOMAS H. RAINES, East View.

To report to Washington, D. C., for temporary duty, and on completion to his proper station, from Army Medical School, Lieut. WALTER G. FOX, Fort Plain; from Fort Myer, Lieut. ABRAHAM L. LOWENTHAL, New York.

To Rockefeller Institute, for instruction, and on completion *to Fort McHenry, Md.*, for temporary duty, from Allentown, Pa., Capt. EDWARD DOWDLE, Oswego; from New York City, Capt. EDWIN G. RAMSDELL, White Plains; Camp Upton, for temporary duty in base hospital, from Fort Oglethorpe, Lieut. HENRY R. KUTIL, New York; for instruction in laboratory work, and on completion to Army Medical School, for duty, Lieut. WALTER S. BENNETT, Glen Falls.

To Washington, D. C., for instruction, Lieut. JAMES B. MURPHY, New York.

To his home and honorably discharged, from Fort Oglethorpe, Lieut. FRANK P. IVES, New York.

North Carolina

To Fort Oglethorpe, for instruction, from duty as a private at Camp Jackson, Lieut. HOLMAN BERNARD, Pinnacle.

To Philadelphia and Pittsburgh, Pa.; Cleveland, Ohio; Detroit and Battle Creek, Mich.; Chicago and Rockford, Ill.; Minneapolis, Minn.; Des Moines, Iowa; Omaha, Neb.; Fort Riley, Kan.; Kansas City and St. Louis, Mo.; Indianapolis, Ind.; Louisville, Ky.; Cincinnati and Chillicothe, Ohio, to examine applicants for the A. S., S. C., and on completion to his proper station, from Washington, D. C., Major R. LEWIS, Raleigh.

To his home and honorably discharged, from Camp Wadsworth, Lieut. MARVIN L. SMOOT, *Fayettesville.*

Ohio

To Camp Cody, Deming, N. M., base hospital, Lieuts. WILLIAM F. MILLHON, Columbus; VIRGIL J. FRUTH, Fostoria.

To Camp Doniphan, Fort Sill, Okla., to examine the command for mental and nervous diseases, from Camp Mills, Lieut. JOHN C. GEORGE, Dayton.

To Camp Kearney, Linda Vista, Calif., for duty, *from Camp Bowie*, Lieut. VICTOR R. SMALL, Columbus.

To Camp Meade, Md., base hospital, from Philadelphia, Lieut. ALLEN N. WISELEY, Ada.

To Fort Oglethorpe, for instruction, Lieut. HARRY E. WOODBURY, Akron.

To New York City, Post-Graduate Medical School, for instruction in urology and dermatology, Lieut. LAWRENCE D. MILLER, Toledo.

To Philadelphia, Pa., for training in his specialty, *from* Camp Greene, Lieut. HOWARD H. DAVIS, Cleveland.

To Rockefeller Institute, N. Y., for instruction, and on completion *to Camp Upton*, L. I., N. Y., base hospital, *from* Fort Oglethorpe, Lieut. CARROLL H. SKEEN, Seneccaville.

To his home and honorably discharged, from Camp Taylor, Capt. ELIJAH W. TIDD, Stockdale.

Oklahoma

To Camp Custer, Battle Creek, Mich., for duty, from Fort Riley, Lieuts. JOHN V. ATHEY, Bartlesville; FRANK A. FANNIN, Stigler.

To Fort Oglethorpe, for instruction, Capt. JOHN C. MAHR, Oklahoma City; from Philadelphia, Lieut. DAVY L. GARRETT, Altus.

To Fort Riley, for instruction, Lieuts. JOSEPH H. STOPLER, Muskogee; EARL L. YEAKEL, Norman.

To Lake Charles, La., Signal Corps, Aviation School, Gerstner Field, from Montgomery, Ala., Lieut. JAMES R. BOST, Cashion.

To his home and honorably discharged, on account of being physically disqualified for active service, from Fort Oglethorpe, Lieut. LOUIS C. KUYRKENDALL, McAlester.

Pennsylvania

To Camp Bowie, Fort Worth, Texas, base hospital, Lieut. FRED D. REYNOLDS, Pittsburgh.

To Camp Cody, Deming, N. M., base hospital, from Fort Oglethorpe, Lieut. ANDREW J. W. HANDWORK, Altoona.

To Camp Devens, Ayer, Mass., base hospital, from Camp Devens, Capt. DANIEL M. HOYT, Philadelphia; from Boston, Lieuts. HENRY C. DOOLING, Norwood Station; ALBERT W. GREENWELL, Philadelphia.

To Camp Doniphan, Fort Sill, Okla., base hospital, from Chickamauga Park, Lieut. JOSEPH D. ARONSON, Philadelphia.

To Camp Grant, Rockford, Ill., base hospital, from Camp Grant, Lieut. ALLEN H. MOORE, Philadelphia.

To Camp Hancock, Augusta, Ga., motor mechanic regiments, from Montgomery, Ala., Lieut. ALBON E. FICHTNER, Conemaugh.

To Camp Logan, Houston, Texas, for duty, from Fort Clarke, Texas, Capt. CAREY J. VAUX, Pittsburgh.

To Camp Meade, Md., for duty, Capt. WILLIAM F. McLAUGHLIN, Philadelphia; base hospital, from Philadelphia, Lieut. LOUIS H. MAYER, Johnstown.

To Camp Pike, Little Rock, Ark., base hospital, from Army Medical School, Lieut. SOLOMON F. HOGE, Philadelphia.

To Camp Sherman, Chillcothe, Ohio, for duty, from Fort Oglethorpe, Lieut. JESSE B. HOWE, Erie.

To Camp Wheeler, Macon, Ga., base hospital, from Camp Wheeler, Lieut. JOHN H. STEARNS, Delaware Water Gap.

To Fort McHenry, Md., for temporary duty, from Allentown, Pa., Lieut. ALEXANDER D. FERGUSON, Eddystone.

To Fort Oglethorpe, for instruction, Lieuts. SAMUEL A. KAMERER, Ellsworth; FRANCIS M. S. SCHAM, Johnstown; JOHN D. DONNELEY, Philadelphia; from Boston, Lieut. SUMNER C. SIMPSON, Pittsburgh; from New York City, Lieut. PHILIP J. LUKENS, Jr., Philadelphia; from Philadelphia, Lieuts. GEORGE H. FAGGERT, FRANK G. MURPHY, Philadelphia; Hospital Train No. 27, from Fort Oglethorpe, Lieut. HOWARD C. HEILMAN, Pittsburgh.

To Newport News, Va., to reexamine the troops for tuberculosis, from Camp Meade, Lieut. WILLIAM H. HERR, Lancaster.

To New York City, for intensive training, Lieut. DAVID B. HAWKINS, Curwensville; Post-Graduate Medical School, for instruction in urology and dermatology, Lieut. DAVID P. McCUNE, Jr., McKeesport.

To Philadelphia, for duty, Major CHARLES F. HASSAN, Philadelphia; for instruction in traumatic surgery and fractures, Major EDWARD MARTIN, Philadelphia; for intensive training, Capt. WILLIAM W. RICHARDSON, Mercer.

To Pittsburgh, Hospital Unit "L," Allegheny General Hospital, from Camp Hancock, Major WALTER A. DEARTH, Pittsburgh.

To Takoma Park, D. C., for duty, from New York City, Lieut. CHARLES E. YOHO, Pittsburgh.

To Washington, D. C., for a conference and on completion to his proper station, from Evans Institute, Philadelphia, Capt. CARLTON N. RUSSELL, Philadelphia, Camp American University, for duty, from Fort Oglethorpe, Lieut. WILLIAM J. HARRISON, Philadelphia.

To his home and honorably discharged, from Camp Bowie, Capt. JOSIAH T. BUNTING, Philadelphia; from Camp Green, Lieut. WILLIAM F. McANALLY, Philadelphia; from Camp Jackson, Lieut. CLARENCE W. LURTING, Pittsburgh.

Rhode Island

To Camp Kearney, Linda Vista, Calif., base hospital, from Camp Kearny, Lieut. JOHN P. JONES, Wakefield.

South Carolina

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieut. JOHN M. BEARDEN, Lawrence.

To Fort McHenry, Md., for temporary duty, from Allentown, Pa., Lieut. JOHN R. BOLINE, Columbia.

To Fort Oglethorpe, for instruction, Lieut. LEWIS M. GRIFFITH, Columbia.

Honorably discharged on account of being physically disqualified for active service, Lieut. ARTHUR D. MORGAN, North.

South Dakota

To his home and honorably discharged on account of being physically disqualified for active service, Lieut. ALBERT S. RIDER, Flandreau.

Tennessee

To Austin, Texas, for duty, from Everman, Texas, Lieut. FLEMING J. O'CONNER, Jackson.

To Camp Bowie, Fort Worth, Texas, to examine the command for mental and nervous diseases, from Camp Lee, Lieut. HOWARD M. FRANCISCO, Nashville.

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieut. JOHN S. MILLER, Callierville.

To Fort Barrancas, Fla., for duty, from Camp Shelby, Lieut. DANIEL B. CLIFFE, Franklin.

To Fort Oglethorpe, for instruction, Lieuts. ELLIS LeR. WILKINS, Dyersburg; ROBERT E. SULLIVAN, Nashville; Hospital Train No. 22, from Fort Oglethorpe, Lieut. EMMETT E. BROWN, Nashville.

Texas

To Army Medical School, for duty, from Fort Clark, Lieut. LEVY S. JOHNSON, Richmond.

To Camp Lewis, American Lake, Wash., for duty, from Camp McArthur, Lieut. JAMES J. JOHNSON, Sulphur Springs.

To Camp McClellan, Anniston, Ala., for duty, from Fort Oglethorpe, Capt. JESSE L. WOMACK, Lolita.

To Fort Oglethorpe, Evacuation Hospital No. 6, from Fort Oglethorpe, Lieut. BENJAMIN F. LARGENT, McKinney; for instruction, Lieuts. NEWELL W. ATKINSON, Alice; EDWARD W. TISDALE, Clyde; JAMES A. SHACKELFORD, Thurber; from Boston, Lieut. ROBERT L. HOWELL, Snyder.

To Indianapolis, for duty, and on completion to return to his proper station, Major JOHN B. McLEAN, Fort Worth.

To Rockefeller Institute, for instruction and on completion to Camp Upton, L. I., N. Y., base hospital, from Fort Oglethorpe, Lieut. THOMAS R. SEALY, Santa Anna.

To South San Antonio, Texas, Kelly Field, in connection with the Physical Examining Unit, Capt. TARLETON F. MOORE, Galveston.

To Washington, D. C., Camp American University, from Fort Oglethorpe, Lieut. DAVID C. WILLIAMS, Post.

Utah

To Camp Lewis, American Lake, Wash., for duty, from Fort Riley, Capt. CHAUNCEY M. BENEDICT, Salt Lake City.

Vermont

To Fort Oglethorpe, for instruction, Lieut. GEORGE C. RUBLEE, Hardwick

To Philadelphia, for temporary duty and on completion to San Antonio, Texas, from Fort Ethan Allen, Lieut. ARTHUR L. LARNER, Burlington.

Virginia

To Camp Devens, Ayer, Mass., for duty, from Fort Sill, Major CHARLES A BROWN, Dillwyn; base hospital, from Boston, Lieut. PERCY E. DUGGINS, Norfolk.

To Camp Jackson, Columbia, S. C., base hospital, from Fort Oglethorpe, Lieut. QUINTUS H. BARNEY, Richmond.

To Camp Lewis, American Lake, Wash., for duty, from Fort Riley, Lieut. WILLIAM E. BROWN, Catawaba Sanatorium.

To Camp Pike, Little Rock, Ark., base hospital, from Philadelphia, Capt. HOWARD FLETCHER, Fairfax.

To Camp Wadsworth, Spartanburg, S. C., base hospital, from Fort Oglethorpe, Lieut. MAURICE A. SELINGER, City Point.

To Fort Oglethorpe, for instruction, Lieuts. FRANK W. LEWIS, Merattica; CHARLES E. LLEWELLYN, Richmond.

To Newport News, Va., for duty, Capt. SAMUEL A. RIDDICK, Smithfield.

To Rockefeller Institute, for instruction, and on completion to Takoma Park, D. C., for temporary duty, from Fort Oglethorpe, WILSON H. DRIVER, Norfolk.

Washington

To Camp Lewis, American Lake, Wash., for duty, from Camp Bowie, Capt. ISAAC W. POWELL, Bellingham.

Honorably discharged on account of holding commission in the National Guard, Capt. JOHN B. KINNE, Aberdeen.

West Virginia

To Camp McClellan, Anniston, Ala., for duty, from Fort Oglethorpe, Lieut. HARVEY C. POWELL, Morgantown.

To Fort McHenry, Md., for temporary duty, from Allentown, Pa., Lieut. MARTIN L. SOWERS, Bluefield.

To Fort Oglethorpe, for instruction, from Fort Ethan Allen, Lieut. HARRY D. LAW, Conings.

To New York City, for intensive training in his specialty, Lieut. ROSS DODSON, Spencer.

Wisconsin

To Arcadia, Fla., Signal Corps, Aviation School, Carlstrom Field, from Montgomery, Ala., Lieut. RAYMOND A. HEBRON, Cataract.

To Camp Cody, Deming, N. M., base hospital, from Fort Riley, Lieuts. EZRA J. MITCHELL, Brodhead; CLARK O. DECKER, Crandon; HARRY E. GILLETTE, Packwaukee; HARRY C. McCARTHY, Richland Center.

To Camp Devens, Ayer, Mass., to examine the command in mental and nervous diseases, from New York City, Lieut. CHARLES C. ROWLEY, Winnebago.

To Camp Hancock, Augusta, Ga., motor mechanic regiments, from Montgomery, Ala., Lieuts. ALBERT H. KULIG, Dodge; CHARLES M. PEARSON, Ogema; EDWARD P. EVANS, South Milwaukee.

To Camp McClellan, Anniston, Ala., for duty, from Fort Oglethorpe, Lieut. WILLIAM E. ALLEN, Sun Prairie.

To Dayton, Ohio, Wilbur Wright Station, Aviation General Supply Depot, McCook Field, from Montgomery, Ala., Lieut. ATHOL H. WEDGE, Waupun.

To Fort Leavenworth, Kan., for duty, from Fort Riley, Lieut. FRANKLIN M. HAWLEY, Bayfield.

To Fort Riley, base hospital, Lieut. ABRAHAM B. SCHWARTZ, Milwaukee.

To Fort Slocum, N. Y., for duty, from Neurological Institute, N. Y., Lieut. SMILEY BLANTON, Madison.

To Great Lakes, Ill., to observe construction, organization, equipment and administration of the hospital at the Naval Training Station, and on completion to return to his proper station, Major NELSON M. BLACK, Milwaukee.

To Philadelphia, for instruction in orthopedic surgery, Lieut. BERNARD O. BENDIXEN, Kewaskum.

Honorably discharged on account of being physically disqualified, apt. GUSTAF R. EGELAND, Sturgeon Bay.

CORRECTION

Under "Orders to Officers of the Medical Reserve Corps" in the issue of November 3:

Lieut. JOHN D. MILLER, of Little Falls, N. Y., instead of Cincinnati, O., was ordered *to Camp Grant*, Rockford, Ill., for duty with the 35th Engineers.

Issue of December 15: Lieut. HERBERT L. WILLIAMS, Auburn, Me., instead of Bartonville, Ill., was ordered *to Camp Gordon*, Atlanta, from Fort Oglethorpe.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

FLORIDA

Addition to Hospital.—The addition to the Lee County Hospital, Fort Myers, is practically completed, giving the institution six new rooms, four of which have already been furnished.

New Officers.—Escambia County Medical Society, at Pensacola, December 11: president, Dr. L. de Blocker, Pensacola; vice president, Dr. William D. Nobles; secretary, Dr. Fritz A. Brink, and treasurer, Dr. Walter C. Payne, all of Pensacola.——Hillsborough County Medical Society, at Tampa, December 4: president, Dr. Reuel A. Fly; vice president, Dr. Leland F. Carlton; secretary, Dr. Gilbert H. Hodgson, and treasurer, Dr. Jesse J. Saxton, all of Tampa.——Du Val County Medical Association, at Jacksonville, December 4: president, Dr. Frederick J. Waas; vice president, Dr. William E. Ross, and secretary-treasurer, Dr. Elmo D. French, all of Jacksonville.

GEORGIA

New Sanatorium Building.—Advertisement has been made by the board of trustees of the Georgia State Sanatorium, Milledgeville, for proposals for the construction of a sanatorium building.

New General Hospital.—The Military Hospital at Fort McPherson, Atlanta, has been changed from a base hospital to a general hospital. The new hospital will remain in command of Col. Thomas S. Bratton.

New Officers.—Randolph County Medical Society at Cuthbert, December 11: president, Dr. John L. Shephard, Carnegie; vice president, Dr. Thomas F. Harper, Coleman, and secretary-treasurer, Dr. George Y. Moore, Cuthbert.

Public Health Service Furnishes Health Officers.—P. A. Surg. Charles L. Williams, U. S. P. H. S., is to become health officer of Macon. Dr. Charles Wardell Stiles, U. S. P. H. S., has arrived in Augusta to take charge of the health situation in the zone contiguous to Camp Hancock.

Personal.—Dr. Craig Barrow, Savannah, has been appointed chief surgeon of the Central Georgia Railroad and Ocean Steamship Company, succeeding Dr. William W. Owens, deceased. Dr. Barrow has appointed Dr. Lawrence Lee as assistant surgeon.——Dr. Roger C. Swint has been appointed clinical director of the State Sanatorium, Milledgeville, succeeding Dr. Edward M. Green, resigned to accept the superintendency of the Pennsylvania State Sanatorium.

ILLINOIS

Chicago

Fire in Fraternity House.—Medical students were routed from bed, December 17, when the Phi Rho Sigma fraternity house of Northwestern University caught fire. The damage to the building was estimated at $500.

Dispensary Moves.—The Army Dispensary formerly in the Federal Building was moved, December 22, to its new quarters at 820 Michigan Boulevard Building. Major Samuel C. Stanton, M. R. C., is in command and has as his assistants, Capt. Albert H. Rober, M. R. C., and Lieuts. Claude H. Ogden, M. R. C., Roy R. Haley, M. R. C., and Charles B. Gibson, M. R. C.

Society of Internal Medicine.—At the twentieth regular meeting of the Chicago Society of Internal Medicine, December 17, the program included papers by Dr. Lewis J. Pollock and William Cluney on "Vital Stains and Central Nervous System"; by Dr. Arthur F. Beifeld on "An Etiologic Phase of Pernicious Anemia," and by Drs. Rollin T. Woodyatt and William D. Sansum, on "Treatment of Mercuric Chlorid Poisoning: An Experimental Study."

INDIANA

Physicians Win Suit.—In the damage suit for $25,000 brought against Drs. James H. Fargher and Orlando L. Sutherland, La Porte, in which the defendants were charged with failing properly to set a fracture of the ribs, a verdict was rendered in the St. Joseph circuit court, December 14, in favor of the physicians.

Personal.—Dr. Sterling P. Hoffmann, Bluffton, is ill with smallpox.——Dr. J. Rilus Eastman, Indianapolis, spoke before the Madison County Medical Society, November 27, on "War Surgery."——Dr. Rose Alexander Bowers, Michigan City, has been appointed a member of the staff of the Mayo Clinic, Rochester, Minn.——Dr. Edward J. McOscar, Fort Wayne, was awarded the first prize for the best paper read at the annual meeting of the Pennsylvania Railway Surgeons' Association.

Smallpox.—The state board of health will, it is expected, soon take drastic action to check the spread of smallpox in the state. The board of health of Indianapolis has already initiated such action, and requires that all children be vaccinated.——During November, ninety cases of smallpox were reported in Indianapolis, and during the first ten days in December, sixty-five additional cases were reported.——The health authorities of Fort Wayne believe that they have the smallpox epidemic under control.——A number of cases of smallpox are said to have developed at Grabill.

IOWA

Field Hospital Unit Mustered.—The field hospital unit was mustered in at Iowa City, December 8, under command of Major Francis L. Love, Iowa City.

Personal.—Dr. Frank W. Lee, Riceville, fell to the bottom of his silo chute, December 10, sustaining severe injuries.——Capt. Daniel J. McCarthy, Davenport, is in charge of the second Red Cross Hospital, opened at Jassy, Roumania, December 4.

New Officers.—Dubuque County Medical Society, at its annual meeting, December 11, in Dubuque, elected the following officers: president, Dr. Joseph H. Schrup; vice presidents, Drs. Frank W. Meyers, Dubuque, and Hierstein, Dyersville; secretary, Dr. Clarence E. Lynn, and treasurer, Dr. Henry M. Pahlas, Dubuque.

Hospital Items.—At a meeting of the authorities of Grinnell College with the Women's Club of the city, the plans for a detention hospital for contagious diseases were endorsed, and a committee was appointed to secure the funds for the erection.——Miss Lottie Heywood has been placed temporarily in charge of the Eleanor Moore Hospital, Boone.——Two wards and a number of private rooms have been added to the Anamosa Hospital, which now has accommodation for twenty patients.

MARYLAND

Personal.—Capt. Clement A. Penrose, Baltimore, has returned from a four months' visit to London, Paris, and the trenches in France and Flanders, commissioned to make an investigation of sanitary conditions.——Dr. Archibald C. Harrison, who holds a commission as major in the University of Maryland Hospital Unit, has returned to his home in Baltimore, after spending several week in Virginia, recuperating from a serious operation.

Memorial to Dr. Chambers.—In the main operating room at the Mercy Hospital, an impressive bronze tablet of the late Dr. John W. Chambers has been erected as a memorial to him by the Alumni Association of the College of Physicians and Surgeons. The tablet is a medallion portrait of Dr. Chambers, and is the work of Maxwell Miller, the local sculptor. There were no formal exercises at the unveiling of the memorial, which was private, and in the presence of the members of Dr. Chambers' family, with Sisters of Mercy and the resident staff of the hospital.

MASSACHUSETTS

Whooping Cough Hospital.—What is said to be the first hospital in the United States devoted to pertussis was opened, December 7, in one of the buildings of the west department of the City Hospital.

Federal Hospital on Long Island.—It is announced that Long Island, Boston Harbor, will be taken by the federal government for hospital purposes. The mayor of Boston will use the $1,300,000 realized by the sale to build 500 cottages for the sick and poor now on the island.

Work of Women on Battlefields.—Dr. Rosalie Slaughter Morton, New York, chairman of the war service committee of the Woman's National Medical Association, was a guest of honor at a dinner of the Women's National City Club, Boston, December 5. Dr. Morton described the work of women in the battlefields and hospitals of France, Belgium and Serbia.

Addition to Hospital.—The Municipal Council of Haverhill has appropriated $70,000 for the erection and equipment of an addition to the Glen Gale Hospital. The plans provide for a two-story brick structure to be erected in the rear of the present hospital, increasing its capacity from fifty to 100 patients. It is also proposed to establish a general medical dispensary and outpatient department at the hospital.

Personal.—Dr. Wallace C. Keith, Brockton, was installed as grand master of the Grand Council of Masons at the annual meeting in Boston, December 10.——Dr. Halbert C. Hubbard, Worcester, has been appointed assistant physician to the State Sanatorium, Rutland.——Drs. M. Victor Safford, Honore Van De Velde and Benjamin A. Graves, Boston, were deputized by the mayor to go to Halifax, N. S., and give such aid as they could to the people of the afflicted city.

MONTANA

Smallpox.—In Butte and Silver Bow counties there are said to be 150 cases of smallpox, many of which are of the most malignant type, and compulsory vaccination is suggested by the authorities.

Personal.—Dr. Arthur Morrow, Kalispell, has been named as physician of Flathead County and health officer of Kalispell.—— Dr. Max W. Barbour has been appointed health officer of Helena, succeeding Dr. Ellis A. Johnston, resigned.

NEW JERSEY

Personal.—Dr. John J. Broderick has been appointed surgeon of the police department of Jersey City.——Lieut. James H. Haines, M. R. C., Haddon Heights, is reported to be seriously ill with measles at Camp Pike.

Loyalty Meeting.—A patriotic meeting of the physicians of Trenton and their families was held, December 13, at which Dr. William W. Keen, Philadelphia, and Major Charles A. E. Codman, M. R. C., U. S. Army, Philadelphia, delivered addresses, and Major Henry D. Jump, Philadelphia, presented moving pictures of war conditions abroad and of cantonments in this country.

Clinic for Syphilis.—In compliance with a resolution adopted recently by the Morris County Medical Society that "If possible, at least three hospitals in the county establish a clinic for the treatment of syphilis or specific blood disorders," the board of managers of the New Jersey State Hospital at Morris Plains at its recent annual meeting authorized the establishment of such a clinic at this hospital. Through the liberality of private concerns, the necessary drugs are to be provided without expense to the hospital or state.

NEW YORK

Offers Estate for Convalescent Home.—Froh Heim Farms, the 5,000-acre country estate of the late Grant B. Schley, New York, has been offered by his heirs to the government for a home for convalescent soldiers.

Vassar to Train Nurses.—A committee of the trustees of Vassar College has been appointed to work out plans for a school for the intensive training of registered nurses. In cooperation with the committee on nursing of the Council on National Defense it is also planned to hold a summer conference of Red Cross home service workers, and to establish a normal institute under the auspices of the American Red Cross.

Medical Military Aid.—The American Medical Military Aid Association was incorporated in New York, December 15. The purpose of the association is "To give voluntary medical aid and voluntary assistance to the dependent families of men enlisted in the United States Army and Navy." The directors are Drs. John Ernest Gignoux, Wolff Freudenthal, Mary L. E. Daly McLean, Freeman F. Wood, Isadore L. Hill and Robert Emery Brennan, Mrs. Florence Eno Graves and Mr. Willis G. Nash, all of New York.

New York City

The Flint Estate.—The estate of the late Dr. Austin Flint, who died, Sept. 21, 1915, has been appraised at $144,518 gross. It is to be divided between his two sons and a grandson.

Tubercuosis Hospial Admission Bureau Moves.—The Hospital Admission Bureau, which is maintained jointly by the department of health and the Department of Public Charities, has removed from First Avenue near Twenty-Fifth Street to 145 Worth Street, where it will be more easily accessible and where larger quarters have been secured.

Pneumonia Continues to Increase.—While New York is not suffering from an epidemic of pneumonia, the disease has been unusually prevalent not only in the city but throughout the state, and both the city and state health departments have been keeping before the public the fact that pneumonia is an infectious and communicable disease and one that is to a large extent avoidable if proper precautions are taken. For the week ended December 14 there were, out of 1,443 fatalities, 263 due to pneumonia; for the preceding week, out of 1,417 deaths, 220 were caused by pneumonia. The average number of deaths from pneumonia for this time of year in this city is about 200. While there is usually an increase in the number of deaths from respiratory diseases as the winter progresses, this year the increase began earlier and has continued at a much higher rate than usual.

Personal.—Dr. Thomas Darlington, formerly health commissioner in New York, has been engaged permanently as sanitary commissioner of the American International Ship Building Co.——Dr. Walter J. O'Connell of the Buschwich Hospital was seriously injured in a collision between an ambulance of the hospital and a street car, December 10.——As a result of a competitive examination for the position of chief medical examiner of New York, Dr. Otto H. Schultze, pathologist to the district attorney, and Drs. Charles Norris and Douglas Symmers of the pathologic laboratories of the Bellevue Hospital have qualified for the position. The new examiner takes the place formerly held by the coroner.——Drs. Burr B. Mosher, John Osborn Polak, Sylvester J. McNamara, Jaques C. Rushmore, Henry M. Mills and Henry M. Moses, all of Brooklyn, has been appointed councilors of the Long Island College Hospital Alumni Association.

OHIO

Smallpox in Toledo.—Smallpox is reported to be unusually prevalent in Toledo. It is stated that there are approximately 20,000 unvaccinated children in public schools.

Academy Election.—At the annual meeting of the Muskingum County Academy of Medicine, held in Zanesville, December 12, Dr. Leroy F. Long was elected president; Dr. William F. Sealover, vice president, and Dr. Oren I. Dusthimer, secretary-treasurer.

Personal.—Dr. Edward Herbst, Columbus, who is about to retire as a member of the board of education, took the highest rank in the recent civil service examination for city physician.——Dr. Rush R. Richison, Yellow Springs, assumed his new duties as superintendent of the District Tuberculosis Hospital, Springfield, December 21.——Dr. Edward J. Schwartz, for fifteen years health officer of Salem, has resigned to accept the position of director of communicable diseases in the state department of health.

PENNSYLVANIA

Personal.—Dr. W. Edgar Holland, Fayetteville, has been elected physician to the Franklin County Home, succeeding Dr. John K. Gordon, Chambersburg.——Dr. Mary Janet Alexander, Chester, has resigned to take up work as a medical missionary in India.——Dr. Jesse Cope Green, a well known dentist of West Chester celebrated his 100th birthday anniversary, December 13.——Dr. Oliver C. Heffner, Pottstown, received severe burns of the face and hands while pouring an antifreezing solution into his automobile.——Dr.

Edward L. Davis, Berwick, has been appointed coroner for Columbia County, to succeed Dr. William H. Hoffa, deceased.

Philadelphia

Personal.—Lieut. Hugh Cotter Boyle, formerly of the British Ambulance Corps No. 17, with the rank of regimental surgeon, and later transferred to the Second Durham Infantry, was severely wounded in action in France, December 7. Dr. Boyle served for a year as an intern in the Samaritan Hospital, and practiced in this city until last May.——Dr. Samuel G. Dixon was reelected, for the twenty-second consecutive time, president of the Academy of Natural Science at the annual meeting, December 18.

TEXAS

Free Clinic.—The health department of Amarillo has established a free clinic at the Amarillo Hospital, which will be held for two hours each week for the benefit of indigent patients.

Hospital for Tuberculous Negroes.—The health department of Dallas has asked the county commissioners' court to appropriate a sum of money for the construction of a hospital to be used for the treatment of negroes suffering from tuberculosis.

North Texas Physicians Meet.—At the seventy-sixth semiannual meeting of the North Texas Medical Association, held in Dallas, December 11 and 12, the following officers were elected: president, Dr. H. Leslie Moore, Dallas; vice president, Dr. Sidney J. Wilson, Fort Worth; secretary, Dr. David L. Bettison, Dallas, and treasurer, Dr. Martin L. Wilbanks, Greenville. A committee was appointed to petition congressmen and senators to eliminate that portion of Section 2120, of the Emergency War Revenue Act, which provides a professional tax of an additional 8 per cent.

State Health Board Notes.—A meeting of the state board of health was held at Laredo, December 10, to discuss the work of the present year, and outline plans for the coming year, and to consider the Mexican border quarantine service and other matters of public importance.——Dr. David E. Rouse, epidemiologist to the Ohio State Board of Health, and director of Red Cross Unit No. 12, Chillicothe, Ohio, has been appointed field director by the state board of health.——Dr. Albert H. Braden, Beaumont, has been appointed a field director by the state board of health, and will have charge of the work in McLellan County.

WASHINGTON

New Health Officer, Chemist and Bacteriologist for Tacoma.—Dr. Hilbrand J. Hards has been appointed health officer of Tacoma, succeeding Dr. Jonathan E. Henry, resigned, to take effect, January 18.

New County Officers.—At the meeting of the Whatcom County Medical Association, held in Bellingham, December 10, the following officers were elected: president, Dr. Edward W. Stimpson; vice presidents, Drs. Carl C. Hills, Albert M. Dawson and Newton W. Wear; secretary, Dr. Orville E. Beebe, and treasurer, Dr. Frank J. Van Kirk, all of Bellingham.

GENERAL

Rutland Railway Surgeons Elect Officers.—At the annual meeting of the Rutland Railway Surgeons' Association, held in Burlington, Vt., December 13, the following officers were elected: president, Dr. James M. Hackett, Champlain, N. Y.; vice president, Dr. Joel B. Woodhull, North Bennington, Vt., and secretary-treasurer, Dr. Stanton S. Eddy, Middlebury, Vt.

Bequests and Donations.—The following bequests and and donations have recently been announced:

Building fund of the People's Hospital, New York, a donation of $5,000 from Louis Koenberg, and $3,000, the proceeds of a theatrical benefit.

King Edward's Hospital Fund, London, a donation of $175,000 from Viscount Astor.

Provident Hospital, a contribution of $1,000 in cash by negroes of the city.

New Officers for Southwestern Association.—At the fourth annual meeting of the Southwestern Medical and Surgical Association, held in Albuquerque, N. M., December 7 and 8, the following officers were elected: president, Dr. Percy G. Cornish, Albuquerque, N. M.; vice presidents, Drs. W. Warner Watkins, Phoenix, Ariz., and Charles G. Duncan, Socorro, N. M., and secretary-treasurer, Dr. John R. Van Atta, Albuquerque. El Paso was selected as the next place of meeting.

Mary Pemberton Nourse Fund for Public Health Study.—The Mary Pemberton Nourse Fund for Public Health Study has been established by the class of 1914 of Vassar College in memory of Mary Nourse of that class, who dedicated herself to the cause of public health, but whose aim was cut short of realization. This fund is established for the purpose of offering a fellowship to young women who desire to devote themselves to the important work of public health, and is recommended for consideration by Julia C. Lathrop, chief of the Children's Bureau, United States Department of Labor; Dr. William H. Howell of Johns Hopkins University, School of Hygiene and Public Health, and Henry N. MacCracken, president of Vassar College. The sum at the disposal of the class is to be increased until the income from it will provide opportunity for continued and valuable work in this field. An appeal is now being sent out for gifts of money, and especially of Liberty Bonds, to bring the sum up to the required amount. Coupon bonds and contributions may be sent to the chairman, Katherine Taylor, 330 Webster Avenue, Chicago.

PARIS LETTER

Paris, Nov. 29, 1917.

Surgery of Nerve Trunks

At one of the recent sessions of the Société de chirurgie de Paris, Dr. Chevrier, hospital surgeon, presented an interesting communication on the technic of the repair of injured nerve trunks. The operation may consist of a liberation, a total suture or a partial suture of the nerve. Chevrier never approaches the nerve at the level of the lesion, but always either above or below, always working without instruments so as not to contuse the nerve; next, he frees it of its coverings; then he scarifies the surface with the point of a bistoury, and, finally, he ensheaths it in amniotic membrane. For total suture, it is convenient, as a preliminary step, to mobilize the nerve for quite a stretch above and below, which favors the bringing together of the nerve ends after the resection. The resection must be extensive enough to obtain a nerve end of the same appearance as is obtained after cutting a normal nerve. Experience has taught Chevrier that he must resect a little more than the hard, indurated mass in the old cases, and a little less than this in the recent cases. The section should be made with a thin, sharp bistoury, not with scissors, because they crush or bruise the nerve. Chevrier makes the section perpendicular to the nerve axis in both stumps. The circular surfaces thus obtained lend themselves to better placing of the suture, and reduce to a minimum the possibility of displacement of the axis cylinder. The suture should aim to be an exact circumferential approximation of the nerve stumps. Chevrier places separate sutures of catgut, including the neurilemma and the most superficial part of the nerve. He puts in many sutures, separated by forceps arranged in order. It is important that when these sutures are tightened the nerve ends are brought together without crushing or bruising. If the nerve ends are not brought in contact by this procedure, the threads are tightened by twisting the ends, going over them in turn several times. The coaptation of the nerve ends may be facilitated by lessening the tension on the nerve itself: flexing the leg for the nerves of the thigh, flexing the forearm to relieve the tension on the median and the radial nerves; extending and adducting to ease up on the ulnar.

PARTIAL SUTURE

In the case of partial suture, the difficulties are found in the resection. It is important that the principle of removing the whole of the indurated fibrous mass must be respected, and that is a difficult matter. By being too conservative, this fundamental principle is not observed. Hence partial resections give results inferior to those obtained with total suture. If the case is one which apparently does not lend itself to a complete resection of the indurated fibrous mass, a resection is nevertheless preferable to a partial suture, even though some normal fibers have to be cut, because a perfect total suture will certainly be followed by regeneration. With this reservation, resection preliminary to partial suture can be effected in several different ways; it may be cuniform, trapezoid or rectangular. The last mentioned is the one preferred by Chevrier, because it gives better approximation. The suturing is done at separate points, but the immediate result does not look so well as that obtained from total suture, because of the hump formed by the sound part of the nerve that has been left intact. The suture completed, the union is wrapped in amniotic membrane.

AFTER-CARE AND OUTCOME

Chevrier insists on the importance of complete asepsis in the performance and after-care of this operation. When the extremity has been placed in an abnormal position for the purpose of lessening the tension on the nerve, it is kept in such a position on an average for three weeks; then it is gradually returned to its normal position. He has never seen a case where the abnormal position became permanent. This technic has yielded the best results; for example: Chevrier's personal experiences in the cases involving the external popliteal nerve are as follows: two liberations, reviewed and followed, have both been cures. Of six total sutures, two were not followed beyond the fourth month, but there is every reason to hope that the result in these cases is a good one. The remaining four cases have been followed and reexamined. They were all cured with complete return of motion.

WALTHER'S TECHNIC

Dr. Walther, assistant professor at the Faculté de médecine de Paris, and surgeon of the hospitals, speaking of the liberation of nerves, said that it is not always possible to accomplish this without the use of instruments as, for instance, when the nerve is included in a mass of thick, fibrous tissue. For some time it has been his practice to effect such liberation with a small, blunt tenotome, used on the flat. As concerns nerve suture, to avoid the turning back of the nerve fibers, which may result from too accurate apposition of the nerve ends, he has followed a method of impacting the nerve ends, hollowing out one end and rounding off the other, so that all the parts of the nerve, especially the central, will be in contact without pressure. He directed attention to a very important question, namely, that of the indication for operation as determined during the operating. Chevrier is guided by the results of electric exploration of nerve function, which is all very well, but when the result is negative, one cannot draw any conclusions as to the nature of the interruption of nerve function; one does not know whether the axis cylinders are embedded in the cicatrix and thus are blocked, or whether they have forced their way through the cicatrix and have penetrated the lower end of the nerve. All that a negative result shows is that the nerve fibers have been completely destroyed. It only remains to determine the position of the lesion and the consistency of the fibrous mass, to decide on the operation to be performed. If there is present a large fibrous mass, well isolated, encapsulated, as it were, a neuroma or a glioma, Walther believes that it is well to remove it, endeavoring, by means of a longitudinal incision, to shell it out, observing all precautions not to bruise or crush the tissues of the nerve embedded in it. When it is a case of diffuse induration, enucleation is out of the question; the only choice is between total resection with suture of the two ends or conservation of the trunk with its cicatricial tissue. In any event, it is convenient to perform the last mentioned operation only if medical treatment, carried on for many months, has failed to show any improvement in the condition of the nerve.

Dr. Quénu, clinical professor of surgery at the Faculté de médecine de Paris, also stated that it is impossible, in certain cases, to know just what part the cicatricial tissue plays; it is wrong to say that this tissue must be removed in every case, especially when such removal would necessitate making extensive resection.

CHAPUT'S TECHNIC

Dr. Chaput, surgeon of the hospitals of Paris, believes that nerve suture can be done by a technic more simple than that of Chevrier. He recommends suture of the neurilemma as being logical in principle, although difficult of execution, because of the possible hernia of the nerve fibers. The conditions for success in nerve suture depend always on the technic employed, local conditions and the general state of the patient. From the point of view of technic, Chaput prefers simple catgut, which is less irritating than silk or chromic catgut. Few sutures should be taken, and they should be placed as near the edge of the nerve as possible so as to avoid the turning back or overlapping of the nerve ends. These sutures should not be drawn tight: the two nerve ends should merely be in contact, and not too closely in contact either, for the postoperative congestion increases the compression of the nerve tissue, and even though the suture is not tight, it brings the ends in contact. Finally, the sutured nerve should not rest on a hard bed, such as bone, but on an interposed muscular bed. The general state of the patient is also of very great importance. First, the age. The operation is not a success in the old; it is much more successful in the young. Alcoholics, syphilitics, those suffering from intoxications, tuberculosis, kidney, liver or heart disease or arteriosclerosis, are in very poor condition for nerve suture, and it is among these that failures are observed most often.

LONDON LETTER

London, Nov. 27, 1917.

The War

VITAL STATISTICS

In his presidential address to the Royal Statistical Society, Sir Bernard Mallet, the registrar-general of births, marriages and deaths, referred to the overwhelming importance of the whole question of racial advance or decline, on which the fate of nations so largely depends, and to the damage that the present struggle must inflict on this and other nations. Dealing with the effect of war on marriages, he said that the number of marriages increased steadily from 260,544 in 1909 to 286,583 in 1913, and that this increase was continued in the first two quarters of 1914. Although the increase in the latter half of 1914 was smaller than that in the earlier half, during the second, third and fourth quarters of 1915 and the first quarter of 1916 a sudden and abnormal rise occurred, and war marriages swelled the totals until they reached "record" heights. Thereafter the increase in marriages continued, but with diminished force, and by the third quarter of 1916 the number had fallen below the average. Crudely stated, he declared that the war has resulted in 200,000 people being married between August, 1914, and June, 1917, who in the ordinary course would not have married. The marriage rate for 1915 was the highest recorded, 19.4; the previous maximum, 17.9, was in 1853.

With reference to the marriage statistics in belligerent countries, he said that in Hungary the effect of the war had been that more than 600,000 people who in the ordinary course would have married had not done so. In Prussia, Bavaria, Saxony, Hesse, Hamburg and Bremen, six states containing more than 80 per cent. of the German population, the total number of marriages in 1913 was 434,103, and in 1914 the number was 392,053, a decrease of nearly 10 per cent., in spite of a great number of war marriages during the first month of the war. From figures available, in Saxony, compared with the last year of peace, the decrease was about 35 per cent., in Hamburg 24.5 per cent., in Bremen 37.6 per cent., and in Berlin 21.6 per cent., and he presumed that the decrease in the country was greater than in the town.

Comparing the statistics, the president said that the very notable difference was not difficult to account for. In Germany the whole population of military age was mobilized; in England war marriages were stimulated by generous allowances and pensions. On the introduction of compulsory service, larger numbers of men of marriageable age were fighting abroad, and the conditions were beginning to approach those of the Germans, the influence of which could be seen in the birth rate, although the comparison was wholly in favor of this country.

The loss of potential lives to the belligerent countries by the decrease in the numbers of children was, perhaps, the most important effect produced by the war on vital statistics. It was first felt at the end of April, 1915, and it would continue until nine months after the termination of hostilities and demobilization was more or less completed. In England and Wales, in the three years 1911-1913, the decrease in the births amounted to 4.2 per cent. in numbers as compared with 1908-1910, and represented a birth rate of 6.3. In Germany the decrease had been much more rapid of late years; the decline was 5 per cent. in numbers and 9 per cent. in rate, and in Hungary 1.1 and 3.5. From these figures it was apparent that the United Kingdom had suffered far less than had Germany in this vitally important point. The United Kingdom lost by the fall in births over 500,000 potential lives, approximately 10,000 per million of the population. Germany lost in the same period 2,600,000 approximately 40,000 per million. Hungary lost 1,500,000, approximately 40,000 per million. At the outbreak of war, the population of the central empires was about two and a half times as great as that of the United Kingdom; their losses of births had apparently been ten times as great. The poorer classes in this country had never experienced more favorable conditions, but the Germans, if all indications were to be believed, had suffered to such an extent as to affect seriously the general health of the population.

As regards infant mortality, the rate during 1914-1916 had been lower both in the United Kingdom and in Germany than in any previous period of like duration; but the summer mortality in 1917 appeared to have been extraordinarily high in several German cities in spite of the great organized efforts to save infant life, and the German rate all through remained at about 50 per cent. higher than in this country. The rate recorded in the United Kingdom in 1916 was the lowest on record. In speaking of the deaths during the period of the war, Sir Bernard Mallet distinguished between civilians and members of the armed forces. Generally there was a marked rise in civilian deaths in 1915, followed by a fall to below prewar numbers in 1916. One cause of the decrease was the restrictions in the output of alcoholic liquors.

FOOD CONTROL: BAN ON SALE OF CREAM

New orders have been issued by the food controller. The use of cream is prohibited except for the purpose of making butter or for consumption by invalids, young children, or other persons on a physician's order. The order has been issued to conserve as much full milk as possible, and because the use of cream has been chiefly a luxury.

Another order prohibits the use by brewers of any saccharin substance other than solid glucose or the invert or other product of low-grade sucrose polarizing not over 89 degrees, and from which not less than 40 per cent. of its weight has already been extracted in the form of grocery crystal sugar, honey, sugar or syrup. Brewers are, however, permitted to use their existing stocks or any sugar that was in transit to them, at the date of the order, from the manufacturers. The quantity of such saccharin substance that brewers are permitted to use is not more than 40 per cent. of the quantity used by them in the year 1915.

THE SURGICAL TREATMENT OF DISABLED MEN

In a lecture delivered at the Royal Institute of Public Health, Col. Sir Robert Jones, inspector of military orthopedics, said that wounded and disabled men form a serious proportion of the population, and must be helped to remain an economic part of the man power of the nation and not mere helpless dependents. Fully 50 per cent. of the wounded in this war suffered from injuries which either are or may become physical disabilities, the treatment of which is orthopedic. There are now a large number of orthopedic centers started or on the point of being started all over the country, providing accommodation for from 1,400 to 1,800 men each, completely equipped. They consist of special departments, each directed by specially trained surgeons. The heads of these departments hold consultations in doubtful cases. Sir Robert Jones defined orthopedics in relation to military surgery as the treatment by operation, by manipulation, by construction and by reeducation, of disabilities to arms and legs arising from injury or disease. The orthopedics of war he divided into preventive and corrective. Owing to the fact that most gunshot wounds are already septic when the wounded reach surgeons at the front, their energies are taxed by the effort to save life, and many patients reach England with various types of deformity and considerable shortening of the limb. The first duty of the orthopedic surgeon is to consider how the limb—a fractured thigh, for instance—may be lengthened, and lateral deflection, which produces almost complete loss of function of the limb in walking, remedied. When the patient has been made to walk with an apparatus that prevents fresh shortening of the limb, he is only improved, not cured; he is therefore retained in the orthopedic center until his joints become supple and his muscles are developed by intensive methods, including special forms of electric massage and exercises. Again, in the case of a stiff wrist or stiff elbow with, perhaps, loss of part of one of the bones of the forearm, the surgeon first mobilizes the joints, and then, if need be, grafts a piece of shin bone into the arm, the patient being kept in the hospital until the function of the arm is well on the way to restoration. In cases of nerve injury, it is necessary first to mobilize the joints and afterward to operate by nerve suture or tendon transplantation. In the case of a man with a helpless flail hand, certain muscles, which can be spared in the front of the forearm, are attached to paralyzed tendons; in three months the patient may be able to raise his hand. Another military orthopedic problem is to decide, when the elbow-joint, for instance, must be stiff, what is the best position in which to fix it. Usually a stiff elbow fixed at a suitable angle is better than a weak joint; but men engaged in certain trades find a movable though weak elbow more useful than a stiff joint. A great change in the morale of the men in orthopedic centers has been brought about by the progress of military orthopedics. At first they had grounds for fearing that if they accepted treatment designed for partial [illegible] complete restoration of function, their pensions would be reduced. Now the mental attitude of the patient is altered by the fact that pensions are based on physical disability without reference to earning power, and that there are penalties in the form of reductions if treatment is refused. Men are now open to the persuasion of the hospital staff and of cured comrades; they derive direct benefit, mental and physical, from curative workshops. The governing principle of curative work is that voluntary movements are of infinitely greater value than passive movements. When the vast installations of Zander instruments and the way they are employed are considered, Sir Robert Jones considers it amazing that more tragedies do not take place. One gentle movement in every direction of a stiff elbow might overcome adhesions; to repeat the movements in a machine only endangers the tissues by direct irritation. Exercises practiced in curative workshops are of two kinds, direct and indirect. The ingenuity of the instructor is shown in devising direct curative work suitable to each case; but the indirect method is often the best. For example, when a man with a stiff ankle is set to plane or saw wood, he unconsciously uses the ankle as he becomes interested in the work his hands are doing. Again, if a man with stiff fingers who cannot hold any tool is given something to do with the other hand, the crippled hand will come to the rescue in a difficulty and soon become useful. Owing to the control that surgeons at the front have obtained over gas gangrene and sepsis, the number of amputations is diminishing. Further expansion of orthopedic centers has been authorized with the object of getting patients directly from the front in order that the occurrence of deformity may be anticipated.

A man discharged from the army to civil life passes under the care of the Ministry of Pensions, which possesses great responsibilities and great powers for good. It cannot compel a pensioner to undergo training, but it can bring pressure to bear on him, for if treatment short of operation is refused, the pension is reduced, while bonuses are given to men who train, and, if they are married, a separate allowance. Many pensioners will require treatment for two or more years, but it can be carried on while they work or train. Patients discharged from orthopedic centers to civil life fall into two groups, Orthopedic A, consisting of the partially disabled who require further treatment of an orthopedic kind, and Orthopedic B, who require a certain amount of treatment of a general kind. The orthopedic centers supply to the first class a ticket giving a note of the patient's condition, with suggestions to the pension authorities as to the treatment required.

A Ten Months' Child: A Physician's Divorce Case

The old question of the possibility of ten months' gestation, and the consequent one of the legitimacy of a child when connubial intercourse last took place at the beginning of that period, have been fought out again in the law courts. The case is important because it brought to light the experience of our leading obstetricians on the point—a kind of up-to-date symposium. The petitioner, a captain in the Army Medical Corps, sought to divorce his wife on the grounds of adultery. The marriage took place, June 17, 1915. Neither he nor his wife desired to have children till the war was over. Dec. 19, 1915, they cohabited for the last time before he left for Egypt, but, the petitioner alleged, under circumstances that prevented pregnancy. The wife went to her brother in the country at a house where three officers were staying. Then she went to stay with some friend, and menstruated there. Jan. 19, 1916, she went to her father's house, and the suggestion was that between her stay at the last place and coming to her father she comitted adultery with an unknown man. March 10, 1916, she underwent an operation for appendicitis, when it was found that she was pregnant. March 20, she wrote to her husband informing him of the fact. He replied that her statement was absurd, that he was a physician and was convinced that nothing of the kind could ever have happened. Oct. 22, 1916, she gave birth to a child of normal period. Between her husband's leaving England and the birth of the child, 307 days elapsed. The following expert evidence was given for the husband: Dr. H. R. Spencer, obstetric physician to University College Hospital, said that he had known a case of gestation of 307 days from what he had been told was the last day of menstruation. He did not think that the husband in this case could possibly be the father. The operation could not have tended to prolong gestation. Dr. Griffith, obstetric physician to St. Bartholomew's Hospital, said that in protracted gestation the labor would be slow; but he admitted that he had known cases o ten months' children with normal delivery. For the respondent, Dr. Philips, obstetric physician to King's College Ho pital, said that he had experience of three cases, one of 298 days, the second of 306 days, and the third of 308 days, in each of which the husband had left the country for these periods. It was not impossible to have a ten months' child. In her evidence the petitioner said that her menstrual period ended December 18, and that she had proper intercourse with the petitioner, December 19. The judge (Mr. Justice Horridge) said that he believed the respondent, and that the case was one of protracted gestation. He therefore gave judgment in her favor.

Marriages

Charles Northmore Sturtevant, M.D., Frankford, Philadelphia, to Miss Martha Irvine of Mercersburg, Pa., at Frankford, December 8.

Lieut. Kenneth Allen Phelps, M. R. C., U. S. Army, West Point, N. Y., to Miss Ora Shaffner of Burlington, N. C., December 5.

Lieut. Emery Bowers Neff, M. C., U. S. Army, Fort Ringgold, Texas, to Miss Ruth Heath of Houston, Texas, November 27.

Lieut. Samuel L. Wadley, M. R. C., U. S. Army, to Miss Bertha Elizabeth Rahm, both of Memphis, Tenn., December 5.

Marvin H. Porterfield, M.D., Martinsburg, W. Va., to Miss Catherine E. MacLuckie of Frostburg, Md., November 6.

S. Murray Houtz, M.D., to Mrs. Grace M. Moist, both of West Berwick, Pa., at Beach Haven, Pa., October 23.

Henry Ernest Ricketts, M.D., Belleville, N. J., to Miss Mary T. McCue of Newark, N. J., November 17.

Francis Stephen Caldicott, M.D., Woburn, Mass., to Miss Helena Stanfield of Louisville, Ky., recently.

Samuel Duncan Cameron, M.D., to Miss Laura Brouillard, both of North Yakima, Wash., October 25.

Smith Ely Jelliffe, M.D., to Miss Bee Dobson, both of New York City, December 3.

George Cresswell Davis, M.D., to Miss Nelle Bound, both of Milton, Pa., December 1.

Jesse Carroll Coggins, M.D., to Miss Mabel McCahan, both of Baltimore, December 8.

James A. Kiernan, M.D., Chicago, to Miss Grace Cole of Alton, Ill., December 10.

Deaths

Everett James McKnight, M.D., a member of the Board of Trustees of the American Medical Association, died suddenly at his home in Hartford, Conn., December 25, from angina pectoris. Dr. McKnight was born June 12, 1855, in Ellington, Conn., and was graduated from Yale University with the degree of A.B. in the class of 1876. After a year of study in Yale Medical School he entered the College of Physicians and Surgeons in the City of New York, from which he was graduated in 1879. Since that time he has practiced in Hartford and East Hartford, specializing in surgery, and at the time of his death was in active service on the staff of the Hartford Hospital. He was an enthusiastic Yale man, and made the arrangements for the first intercollegiate football game between Yale and Harvard. His alma mater gave him the degree of A.M. in 1907. He served as president of the Connecticut State Medical Society in 1907-1908, and of the Hartford Medical Society in 1914. He represented the town of East Hartford in the General Assembly in 1893, and was chairman of the committees on fisheries and public health.

His official connection with the American Medical Association commenced in 1908, when he was elected a member of the House of Delegates and continued until his election to the Board of Trustees in 1916. His last official work for the Association was as a member of the War Committee, regarding the appointment of advisory boards for the new selective draft.

One of his associates pays him this tribute: "We all put work on him, from the government down to his humblest friend, because he was so capable; then we put more work on him because he was so willing. He worked for others until the last minute." Dr. McKnight was an earnest and conscientious worker, with a humanitarian interest in his fellow men. When he gave himself to a cause he labored with complete devotion to its accomplishment.

Edward Mathew Hanson, M.D., Keokuk, Iowa; Keokuk (Iowa) Medical College, 1892; aged 49; a Fellow of the American Medical Association, and a specialist on diseases of the eye, ear, nose and throat; professor of electrotherapeutics in Keokuk Medical College of Physicians and Surgeons; eye, ear, nose and throat surgeon to Graham Hospital, Keokuk; who had been suffering from a nervous breakdown; died at the home of his cousin in St. Louis, December 11, from the effects of carbolic acid, self-administered, it is believed, with suicidal intent.

Charles H. North, M.D., Dannemora, N. Y.; University of Buffalo, N. Y., 1898; aged 49; a member of the Medical Society of the State of New York, and American Medico-Psychological Association; who entered the state service after graduation as assistant physician at the Matteawan Hospital for Insane Criminals, was transferred to the Dannemora State Hospital for Insane Felons, on its opening in 1900, and was made superintendent of the institution in 1904; was stabbed and almost instantly killed by an insane inmate, December 12.

Capt. Zotique Rousseau, M. R. C., U. S. Army, Troy, N. Y.; Laval University, Quebec, 1869; aged 71; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of New York, and for several terms president of the Rensselaer County Medical Society; on duty at Watervliet Arsenal; for more than forty years attending physician at the Troy Hospital; physician to the Home of the Aged Poor, and for the House of the Good Shepherd; died at his home, December 6, from pneumonia.

Jesse Snodgrass, M.D., Kenton, Ohio; Bellevue Hospital Medical College, 1867; aged 77; formerly a Fellow of the American Medical Association; a member and once assistant secretary of the Ohio State Medical Association; at one time president of the Northwestern Ohio Medical Association; a specialist on diseases of the eye, ear, nose and throat; assistant surgeon of the Eighth Tennessee Volunteer Infantry during the Civil War; who underwent operation several months ago, died at his home, December 8.

Orran George Cilley, M.D., Boston; Dartmouth Medical School, Hanover, N. H., 1868; aged 77; for several years coroner; from 1873 to 1879, surgeon of the First Squadron Cavalry, M. V. M.; surgeon-general of Massachusetts in 1883, under Governor Benjamin F. Butler; for four years physician to the Charles Street Jail; died at his home, December 9.

Albert Stone Gray, M.D., Chicago; Bennett College of Eclectic Medicine and Surgery, Chicago, 1887; College of Physicians and Surgeons, Chicago, 1889; aged 53; for several years a contributor of articles on health topics to the daily press; died in St. Luke's Hospital, Chicago, December 17, from anemia.

John Royer Laughlin, M.D., Hagerstown, Md.; George Washington University, Washington, D. C., 1906; aged 45; formerly a Fellow of the American Medical Association; a member of the Medical and Chirurgical Faculty of Maryland; died in Hallendale, Fla., December 14, from arteriosclerosis.

Charles Francis House, M.D., Painesville, Ohio; Long Island College Hospital, Brooklyn, 1874; aged 69; formerly a Fellow of the American Medical Association; for several terms president of the Lake County (Ohio) Medical Society; died at his home, December 12, from a nervous breakdown.

Charles S. Payne, M.D., Liberty, N. Y.; University of Buffalo, N. Y., 1884; aged 57; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of New York; died at his home, December 12, from cerebral hemorrhage.

Amos H. Helm, M.D., New Providence, Pa.; Jefferson Medical College, 1868; aged 72; a member of the Medical Society of the State of Pennsylvania; for forty years a school director; died suddenly from heart disease, December 10, while shoveling snow in his yard.

Andrew W. Tracy, M.D., Meriden, Conn.; McGill University, Montreal, 1873; aged 71; a member of the Connecticut State Medical Society; mayor of Meriden in 1892, and a member of the city council for two terms; died at his home, December 10.

Guido L. Stempel, Macedonia, Iowa (license, Iowa, years of practice, 1886); aged 82; formerly a member of the Iowa State Medical Society; a well known naturalist and collector of birds and butterflies; died at his home, December 13, from nephritis.

R. M. Montgomery, M.D., Hazlehurst, Ga.; Medical College of the State of South Carolina, Charleston, 1897; aged 52; a member of the Medical Association of Georgia; died in a sanatorium in Hazlehurst, December 2, from acute gastritis.

John Heard Ford, M.D., Vinton, La.; Louisville (Ky.) Medical College, 1893; aged 48; a member of the Louisiana State Medical Association; died at his home, August 2, from tumor of the brain, four weeks after a surgical operation.

Murdoch Chisholm, M.D., Halifax, N. S.; McGill University, Montreal, 1879; L.R.C.P. (Lond.), 1886; professor of clinical surgery in Dalhousie University, Halifax; was killed in the explosion which devastated Halifax, December 6.

Simon Elston Hooper, M.D., West Branch, Mich.; Western University, London, Ont., 1890; aged 54; a Fellow of the American Medical Association; died at his home, November 30, from septicemia, due, it is said, to pyorrhea.

John P. Logan, Dewitt, Mo. (license, Missouri, 1883); aged 63; for forty-two years a practitioner; formerly a member of the Missouri State Medical Association; died in St. Joseph's Hospital, Kansas City, December 4.

Albert Leroy Ward, M.D., Bement, Ill.; Chicago Homeopathic Medical College, 1899; aged 47; formerly a member of the Illinois State Medical Society; died in Decatur, Ill., September 21, from typhoid fever.

Richard Wallopie Kent, M.D., San Francisco; New York University, New York City, 1886; surgeon in the Pacific Mail Steamship Company's service; died in Calcutta, India, September 30.

Andrew Kamerling, M.D., Buffalo; University of Buffalo, 1866; aged 78; formerly a member of the Medical Society of the State of New York; died at his home, about December 6.

Adelaide Lambert, M.D., New Haven, Conn.; Boston University School of Medicine, 1884; aged 64; a member of the Connecticut State Medical Society; died recently at her home.

James Henry Knight, M.D., Morgantown, Ind.; Bellevue Hospital Medical College, 1875; formerly an assistant surgeon in the United States Army; died at his home, December 4.

Anseel McKinstry Whitbeck, M.D., Brooklyn; aged 81; a practitioner since 1859; died at the home of his daughter in Brooklyn, December 4, from senile debility.

William Caldwell Stevens, M.D., Worcester, Mass.; Harvard Medical School, 1883; aged 62; a Fellow of the Massachusetts Medical Society; died at his home, October 17.

S. A. Reasons, M.D., Waldo, Ark.; Memphis (Tenn.) Hospital Medical College, 1894; aged 49; also a druggist; died in a hospital in Little Rock, Ark., December 5.

Samuel Hastings Brown, M.D., Philadelphia; Hahnemann Medical College, Philadelphia, 1869; aged 72; died at his home, November 21, from cerebral hemorrhage.

Frank Marion Foote, M.D., Marshall, Mich.; University of Michigan, Ann Arbor, 1884; aged 56; died at his home, October 28, from pulmonary tuberculosis.

Frank B. Black, M.D., Gilboa, Ohio; Eclectic Medical Institute, Cincinnati, 1886; aged 65; died in a hospital in Cincinnati, December 5, from typhoid fever.

John Calvin Cummings, M.D., Harrisburg, Pa.; University of Maryland, Baltimore, 1884; aged 63; died at his home, November 6, from cerebral hemorrhage.

Joseph H. Matthews, M.D., Lollie, Ark.; University of Arkansas, Little Rock, 1893; aged 48; died at the home of his niece in Conway, Ark., December 6.

B. F. Zeller, M.D., Union City, Ind.; Medical College of Ohio, Cincinnati, 1875; aged 72; a veteran of the Civil War; died at his home, November 29.

Ira N. Noland, M.D., Cleveland; Western Reserve University, Cleveland, 1892; aged 73; a veteran of the Civil War; died at his home, December 2.

John A. Blaydes, M.D., Hot Springs, Ark.; Transylvania University, Lexington, Ky., 1857; aged 83; died at his home, August 18, from pneumonia.

William H. King, M.D., Derry, Pa.; Jefferson Medical College, 1870; aged 68; died in the Columbia Hospital, Wilkinsburg, Pa., December 5.

Wilbur F. Curtis, M.D., Chicago; Bennett Medical College, Chicago, 1890; aged 63; died at his home, December 9, from heart disease.

Lewis A. Lee, M.D., Conyers, Ga.; Atlanta (Ga.) Medical College, 1878; aged 60; died in a sanatorium in Atlanta, December 5.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

NOSTRUMS IN RETROSPECT

A Review of Worthless or Unscientific Proprietary Mixtures Previously Criticized

[Foreword.—The article that follows is the third[1] of a series written primarily for the purpose of reviewing the findings of the Council on Pharmacy and Chemistry on certain unscientific or worthless proprietary mixtures. Although the preparations which will be taken up in this series have been extensively dealt with in previous reports, the fact that they are still widely advertised and sold indicates the need of further publicity. The series is written by a man who is thoroughly conversant with the work of the Council on Pharmacy and Chemistry and can speak authoritatively on questions dealing with the actions of drugs in the treatment of disease.]

[Article III]

PEPTO-MANGAN

S. Q. Lapius, M.D.

It would be interesting, and even instructive, to know how many educated physicians, if any, are now prescribing Pepto-Mangan (Gude): Interesting as indicating the number who have neglected to avail themselves of the work of the Council on Pharmacy and Chemistry, especially the earlier work; instructive in that it would show how many are still prescribing by the rule of thumb, and who are taking their therapeutic instructions from purely commercial sources instead of striving to learn how to choose those drugs that are most effective in the treatment of disease.

It has been pointed out many times in the pages of The Journal that many nostrums are advertised first to physicians, and that after physicians have served as the unpaid agents of the manufacturers in introducing the preparations, their exploitation is then commonly continued by means of advertisements in the public press. This plan has been followed successfully in so many cases that we have now come to look on it as the regular course. It is in keeping with this rule that we find Pepto-Mangan now advertised in the public press, the physician having served the manufacturer's purpose.

DISCARDED THEORIES OF IRON MEDICATION

It will be recalled that many years ago the theory was held that hydrogen sulphid (sulphuretted hydrogen) interfered with the absorption of the iron of the food, and that the administration of medicinal iron prevented this interference by neutralizing the hydrogen sulphid (sulphuretted hydrogen). It was only a short step to argue that manganese might replace the medicinal iron in combining with the hydrogen sulphid, permitting the food iron to be absorbed, and it was held that only food iron could be utilized in the formation of hemoglobin.

It is hardly necessary to remind the reader that this theory rests on numerous fallacies. There is no hydrogen sulphid worth mentioning in the small intestine where iron is absorbed; food-iron cannot be utilized directly in the formation of hemoglobin but must be broken into simple forms for absorption; and, further, inorganic iron, such as ferrous carbonate, serves the purpose admirably where iron is indicated. With the acceptance of these well-established facts all possible excuse for the therapeutic employment of Pepto-Mangan in place of iron vanished, but as plain and simple as this fact is, the unnecessary and expensive Pepto-Mangan continues to be prescribed by physicians who will not take the slight trouble to investigate the claims for this nostrum.

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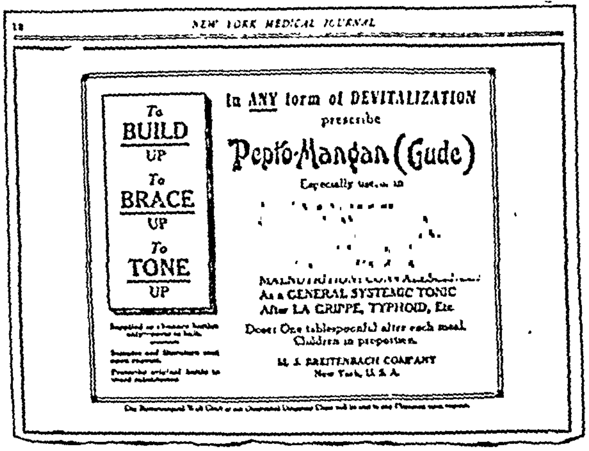
[1] The previous articles of the series are "Bell-ans," The Journal, Nov. 24, 1917; "Anasarcin and Anedemin," The Journal, Dec. 8, 1917.

FALSE AND MISLEADING CLAIMS

That there is not merely a difference of opinion on the part of the exploiters and the Council, but that actual misrepresentation has been employed in the exploitation of this nostrum to physicians has been shown on more than one occasion. About twelve years ago the M. J. Breitenbach Company, the proprietors of Pepto-Mangan, claimed that the report of the Commission that had been appointed for the investigation of anemia in Porto Rico "would alone suffice to establish Pepto-Mangan at once as the foremost hematinic known." Examination of the report showed that the Commission made no such claims; on the contrary the Commission protested against this misrepresentation. (THE JOURNAL A. M. A., Oct. 7, 1905, p. 1099.)



18 NEW YORK MEDICAL JOURNAL

To
BUILD
UP
To
BRACE
UP
To
TONE
UP

In ANY form of DEVITALIZATION
prescribe
Pepto-Mangan (Gude)
Especially useful in

MALNUTRITION CONVALESCENCE
As a GENERAL SYSTEMIC TONIC
After LA GRIPPE, TYPHOID, Etc.
Dose: One tablespoonful after each meal.
Children in proportion.
M. J. BREITENBACH COMPANY
New York, U. S. A.

From the *New York Medical Journal.*

Undaunted by this exposure of their methods, the Breitenbach Company later sent out a statement of results purporting to have been obtained by one Mateo M. Gillen, in the treatment of infantile anemia on Randall's Island in New York City. At the instance of THE JOURNAL the hospital records in these cases were examined, and it was found that the pretended report was little more than a tissue of falsehood. (THE JOURNAL A. M. A., April 6, 1907, p. 1197.)

About two years ago the Council reported that while the statements just referred to were no longer made, they had never been definitely admitted by the Breitenbach Company to be erroneous, and that Pepto-Mangan was then being exploited to the public indirectly. (Council Reports, 1914, p. 121.)

We reproduce an advertisement that has been appearing weekly in the *New York Medical Journal* for several months. One can only suppose that this advertisement was intended to mislead physicians, and it would be an insult to the intelligence of the average reader to attempt any detailed discussion of it, but enough has been said to show how misleading the statements are. One should note particularly the advice—old as the nostrum business itself—contained in the advertisement, to prescribe an original bottle. The reason for such advice is simple. Experience has shown that when original bottles are dispensed patients soon learn to buy the nostrum without consulting the physician, for they shrewdly suspect that he knows *no more about the preparation than* they, and that he gets his information from precisely the same sources that are available to them. They are obviously right. In truth, the physician who prescribes Pepto-Mangan as a hematinic shows ignorance of the most rudimentary facts of iron therapy, and the intelligent patient soon perceives his limitations.

THE PROBLEM OF IRON THERAPY

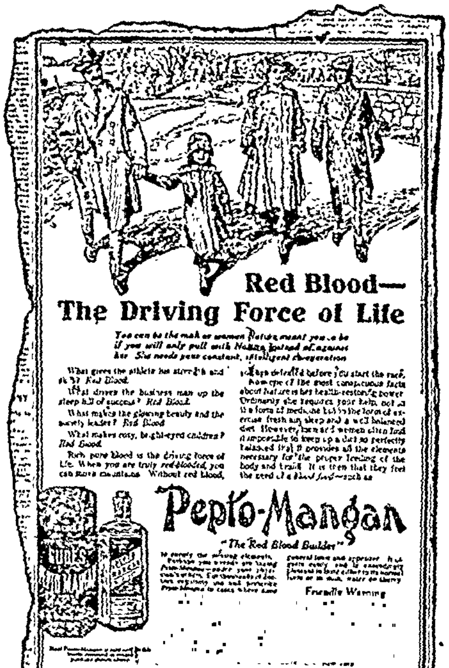
The investigation of the problems of iron therapy and its utilization in the formation of hemoglobin forms one of the most brilliant chapters in pharmacologic research, and there is no better established fact in therapeutics than that any organic or inorganic preparation of iron that does not irritate the stomach may be employed effectively when the administration of iron is indicated. "Useful Drugs" contains a list of iron preparations that are suitable for all conditions which call for iron, and the clinician may rest assured that he will never have occasion to go outside of that list to prescribe any substitute.

As a matter of fact, it seems probable that the very number of available iron preparations has served to cause confusion, thus affording an opportunity for the nostrum maker to introduce his superfluous compounds. It may be difficult at times to select the preparation of iron best suited to the individual patient and it is this difficulty that has led the clinician to *listen to the seductive claims made for the various pretended* substitutes for iron. One should approach the question of choosing the proper form of iron for therapeutic use with the recognition of the fact that there is no such thing as a substitute for iron in the formation of hemoglobin, that there are no ideal forms of iron other than those found in the foodstuffs. Further, the clinician cannot avoid the disadvantages inherent *in all forms* of iron that he can prescribe, and he must therefore seek that which seems best suited for the individual patient.

Bunge estimated the amounts of iron present in various foods and a table based on this, and other data, is given in "Pharmacology of Useful Drugs" (published by the American Medical Association). Ordinary foods in an ample diet contain enough iron to supply the normal daily loss, which amounts to only a few milligrams, but many persons who have poor appetites take an insufficient amount of iron in their food and become anemic. In such cases the additional iron required can be supplied best by adding spinach, eggs, apples, or other iron-rich food to the dietary.

SOME IRON COMBINATIONS

William Hunter discusses the subject of anemia and its treatment at considerable length in the "Index of Treatment," Ed. 6, pp. 17-37, and gives many prescriptions containing iron for use under different conditions, and while it is unnecessary to reproduce all of these here, a few may be given in order to suggest suitable methods of prescribing iron when it cannot be given in sufficient amounts in the food.



Red Blood—
The Driving Force of Life

You can be the man or woman Nature meant you to be if you will only pull with Nature instead of against her. She needs your constant, intelligent cooperation.

What gives the athlete his strength and skill? *Red Blood.*

What drives the business man up the steep hill of success? *Red Blood.*

What makes the glowing beauty and the society leader? *Red Blood.*

What makes rosy, bright-eyed children? *Red Blood.*

Rich pure blood is the *driving* force of life. When you are truly *red-blooded*, you can move mountains. Without red blood, you are defeated before you start the race.

One of the most conspicuous facts about Nature is her health-restoring power. Ordinarily she requires your help, not in the form of medicine but in the form of exercise, fresh air, sleep and a well balanced diet. However, men and women often find it impossible to keep up a diet so perfectly balanced that it provides all the elements necessary for the proper feeding of the body and brain. It is then that they feel the need of a *blood food*—such as

Pepto-Mangan
"The Red Blood Builder"

Friendly Warning

A newspaper advertisement of Pepto-Mangan.

In chlorosis Hunter advises that that form of iron which experience has shown to be least disturbing to the patient's stomach should be used, and he suggests separate stomachic mixtures to be used simultaneously not mixed with the iron itself. Where constipation exists—and this is a very common accompaniment of chlorosis—he gives the following aperient iron combination:

Ferrous sulphate	gr. iv
Magnesium sulphate	ʒ i
Aromatic sulphuric acid	♏ vii
Tincture of ginger	♏ x
Compound infusion of gentian (B. P.) q. s., ad	℥ i

This, constituting a single dose, is to be taken twice daily—at 11 a. m. and 6 p. m. A little compound tincture of gentian and water may be used in place of the compound infusion of the British Pharmacopeia. He modifies this somewhat as occasion demands by using sodium sulphate and adding bicarbonate of sodium (which converts the sulphate of iron into ferrous carbonate) and adds 10 minims of spirit of chloroform to act as a stomachic.

Hunter also suggests the use of pills of aloes and iron in place of the above mixture, and when constipation has been corrected the aloes may be omitted and the pill of ferrous carbonate alone may be used for the iron. Hunter's comment regarding this pill is: "very satisfactory."

The same form of iron is available in the compound iron mixture, formerly official, which Hunter says is exceedingly good. In this country the compound solution of iron and ammonium acetate, Basham's mixture, so called, has long enjoyed a wide reputation as causing very little disturbance of the stomach, and the homely tincture of ferric chlorid is probably useful in a large majority of cases in which the stomach is not especially irritable.

We may say with assurance that one of the forms suggested here will suffice for practically every case in which it is necessary to reinforce the amount of iron available in the food by some pharmaceutical preparation. If these do not satisfy your requirements consult a really competent pharmacist and enlist his aid in devising a mixture especially suited to your individual patient.

Correspondence

THE ROENTGEN RAY IN TREATMENT OF EPILEPTIC SUBJECTS OF STATUS LYMPHATICUS

To the Editor:—In Bellevue Hospital the diagnosis of status lymphaticus by simple inspection of the body is frequently made, both in the wards and in the necropsy room—in the latter place without the clinical history and before proceeding with the systematic examination of the viscera. In the male, the configuration of the body in status lymphaticus is of the female type—the face is beardless or nearly so, and the axillary and other hairs are scanty, the skin is smooth and of an unusually delicate texture, the pubic hairs are sharply defined in a transverse direction, the waist is slender and sloping, and the thighs are gracefully arched both laterally and anteriorly. In the female, the diagnosis is rather more difficult, and rests largely on features that are only an accentuation of those normally encountered, namely, the thin, delicate skin, the narrow waist and the arched thighs, together with the small axillary pads and the scanty growth of hair on them.

In the psychopathic pavilion at Bellevue Hospital, it has been noted by Dr. Karpas that many epileptics present the external peculiarities of status lymphaticus; and it is a well known clinical fact that epileptic seizures not uncommonly cease at or about the age of puberty, in other words, at a period when the thymus undergoes involution. Ohlmacher has pointed out the resemblance between epileptic seizures and the symptoms that sometimes precede sudden death in subjects of status lymphaticus. In the pathologic laboratories at Bellevue Hospital I have often had occasion to observe the presence of myriads of acute necroses in the lymphoid tissues in subjects suddenly dead with all the physical attributes of status lymphaticus, and have advanced the theory (*American Journal of Diseases of Children*, 1917, **14,** 463) that these necroses represent the structural expression of sensitization of the tissues to toxic nucleoproteins, and that the convulsive seizures in certain epileptics and sudden death in other subjects of status lymphaticus are of the nature of anaphylactic phenomena.

I should appreciate an opportunity, through the medium of The Journal, to direct the attention of radiologists to these facts and to suggest that epileptics with the external configuration of status lymphaticus be systematically subjected to radiation, particularly in the region of the thymus, the spleen and the intestine. The several groups of superficial lymph nodes are not commonly enlarged in status lymphaticus, and are apparently negligible from this standpoint.

It is of interest to observe that many soldiers, exposed to the terrifying vicissitudes of trench life, have been invalided to France and England with symptoms of exophthalmic goiter varying in intensity from simple tremor and tachycardia to the fully developed picture; that almost every subject of exophthalmic goiter examined postmortem reveals hyperplasia and persistence of the thymus, together with the other anatomic features of status lymphaticus, and, finally, that the British radiologists have reported remarkable results in exophthalmic goiter in returned soldiers who have been exposed to radiation of the thyroid gland (White, C. P., and Hernaman-Johnson, F.: *Lancet*, London, 1916, **1,** 78. Stoney, F. A.: Ibid., 1916, **1,** 777). In these circumstances it is possible, I think, that the anatomically related thymus has come in for a share of radiation, and that improvement is to be traced partly to this effect.

At all events, the use of the roentgen ray is known to discourage the proliferation of lymphoid tissues, and its employment in epileptic subjects of status lymphaticus appears to be a procedure justified by anatomic considerations.

Douglas Symmers, M.D., New York.
Assistant Director of Laboratories, Bellevue and Allied Hospitals.

CHARCOT'S OPINION AND CRITICISM OF GERMAN MEDICINE

To the Editor:—Ten years after Sedan and thirty-three before the present war, the great French physician Charcot in his "Lectures on Senile Diseases," page 20, indulges in comment on French, German and English medicine that is perhaps more striking now than when it was written. It will probably be interesting to the 20,000 physicians who have already volunteered in the medical service of our country.

The pride of the Frenchman in Laennec and the stethoscope is evident. The slow waking up of the German to modern scientific medicine, and the influence of Schönlein, of purpura fame, and of Rokitansky is charmingly described. The keen terseness of the French is evident when he refers to "the science from beyond the Rhine." In the last two paragraphs he accuses Virchow of abusing "the word science in order to excite German minds for the sake of a narrow patriotism." His contrast of "the exclusive and illiberal ideas of the Prussian savant" with "the grand words of one of England's greatest physicians" is striking. The Englishman is Graves, of exophthalmic goiter fame. My copy of Charcot was issued by the New Sydenham Society in 1881, translation by Tuke.

"But, some will say, what use are these big words and grand ideas? Have the scientific tendencies about which you make so much fuss had a beneficial influence on the practice of the art? Do you cure more patients than they cured of old? These, gentlemen, are very indiscreet questions, and might easily be thrown back at our adversaries. Let it suffice to reply, with an honored teacher, that art without science is not slow to degenerate into routine [Béhier]. That hackneyed skepticism, which people so willingly oppose to all progress of the human mind, is a comfortable pillow for lazy heads; but the period in which we live allows no time for falling asleep.

"To put in its true light the happy influence which scientific tendencies may have on the advance of medicine, I need only recall to you the remarkable transformation which in the course of the last twenty years this science has undergone in a neighboring country to ours, in Germany. Let us transport ourselves a moment across the frontier, and go back in thought toward the year 1830. At that time Schelling and his audacious 'Philosophy of Nature' reigned absolute masters over German minds. The fashion was for poetic points of view and transcendental conceptions, while a physician allowed himself in a treatise on mucous fever seriously to compare a blood corpuscle to the terrestrial globe, because both are round, flattened at the poles, and possess a central nucleus surrounded by an atmosphere [H. Horn].

"During this time medicine was thus reduced to a deplorable condition. Although they possessed translations of the chief pathological works recently published in France and England, yet the progress long accomplished in these two countries remained as though it had never taken place, for none of them understood its importance. An accurate local diagnosis was never made either in hospital or in private practice. In more than one German university the stethoscope was almost unknown; if anybody happened to come across one of these instruments he examined it with a sort of infantile curiosity, or received with unfavorable jokes those eccentric individuals who, by means of this bit of wood, professed to hear unheard of things. Besides, most chest and heart diseases, as well as chronic skin affections, formed an almost unexplored territory. And when they began to talk of the French it was only to ridicule, this time with more show of justice, the curious mania which made them look on all diseases as inflammations [Wunderlich].

"Things remained thus till near 1840. Then began the work of regeneration (chiefly through Schönlein's influence) by the introduction of the French methods into clinical work. Then it was the turn of morbid anatomy, brilliantly represented at Vienna by Rokitansky. But already Müller had appeared in physiology, and soon created morbid histology, which was long to remain an almost exclusively German science.

"Gentlemen, you know the rest. The German universities presented the spectacle, new to them, of an unheard of, almost feverish, activity; and you are not ignorant that this fever for work, which does not yet seem near extinction, has already produced more than one work of fundamental importance.

"For more than ten years this great intellectual movement remained almost unnoticed in France. From time to time some foreseeing observer tried to draw public attention to it; but there was general indifference to struggle against, and, whilst everything was astir in Germany, we in France were occupied with other matters. At last the day has come, and it is understood that a great power has arisen in our vicinity, so that we shall have in future to reckon with the science from beyond the Rhine. [This lecture was given in 1867.]

"By a very natural reaction people soon got to think extravagantly of the tendencies they had at first opposed; and whilst in France we are perhaps too much inclined nowadays to think nothing of other than German work, our neighbors, drunk with success, seem persuaded that for the future the empire of Science belongs to them. Gentlemen, we must know how to allow something to the inebriation of such a triumph. Yet it is not without regret that we have recently seen an eminent man confound the rights conferred on him by his high position as a savant with the political mandate entrusted to his charge by the electors of Berlin, and abuse the word science in order to excite German minds for the sake of a narrow patriotism [in allusion to a discourse of Virchow's at the Congress of German Naturalists, September, 1865]. Nobody should forget that science owns no country and is the property of no race. With the exclusive and illiberal ideas of the Prussian savant, we will contrast the grand words of one of England's greatest physicians [Graves].

"'The empire of reason, extending from the old to the new world, from Europe to the antipodes, has encircled the earth; the sun never sets on her dominions—individuals must rest, but the collective intelligence of the species never sleeps.'"

Stewart R. Roberts, S.M., M.D., Atlanta, Ga.
Major, M. R. C.

Relations Between Cancer and Diabetes.—An exchange quotes an article by H. Strauss in the *Deutsche medizinische Wochenschrift*, No. 39, to the effect that among 140 diabetic patients he found a history of cancer in the mother in sixteen and in the father in three. This seems to suggest, he says, that cancer in the parents predisposes to diabetes.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alabama: Montgomery, Jan. 8. Chairman, Dr. S. W. Welch, Montgomery.

Colorado: Denver, Jan. 8. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

District of Columbia: Washington, Jan. 8. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

Hawaii: Honolulu, Jan. 10-13. Sec., Dr. G. A. Batten, Box 375, Honolulu.

Indiana: Indianapolis, Jan. 8-10. Sec., Dr. W. T. Gott, 84 State House, Indianapolis.

Minnesota: St. Paul, Jan. 2-4. Sec., Dr. Thomas McDavitt, 741 Lowry Bldg., St. Paul.

National Board of Medical Examiners: New York City, Jan. 9-17. Sec., Dr. J. S. Rodman, 310 Real Estate Bldg., Broad and Chestnut Sts., Philadelphia.

New Mexico: Sante Fe, Jan. 14. Sec., Dr. R. K. McClanahan, East Las Vegas.

New York: Albany, Buffalo, New York City and Syracuse, Jan. 29-Feb. 1. Sec., Dr. W. J. Denno, Education Bldg., Albany.

North Dakota: Grand Forks, Jan. 1. Sec., Dr. G. M. Williamson, Grand Forks.

Oklahoma: Oklahoma City, Jan. 8-9. Sec., Dr. J. J. Williams, Weatherford.

Oregon: Portland, Jan. 1. Sec., Dr. Herbert S. Nichols, Portland.

Pennsylvania: Philadelphia, Jan. 8-10. Sec., Nathan C. Schaeffer, State Capitol, Harrisburg.

Rhode Island: Providence, Jan. 3. Sec., Dr. B. U. Richards, State House, Providence.

South Dakota: Pierre, Jan. 8. Sec., Dr. P. B. Jenkins, Waubay.

Utah: Salt Lake City, Jan. 7-8. Cor. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

Washington: Spokane, Jan. 1. Sec., Dr. C. N. Suttner, Baker Bldg., Walla Walla.

Wisconsin: Madison, Jan. 14. Sec., Dr. J. M. Dodd, 220 E. Second St., Ashland.

Wyoming: Laramie, Feb. 6-8. Sec., Dr. H. E. McCallum, Laramie.

Minnesota August and October Examinations

Dr. Thomas McDavitt, secretary of the Minnesota State Board of Medical Examiners, reports the oral, practical and written examinations held at Minneapolis, Aug. 22-24 and Oct. 2-4, 1917. The examinations covered 18 subjects and included 80 questions. An average of 75 per cent. was required to pass. Eleven candidates were examined, all of whom passed. Eight candidates were licensed through reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
College of Physicians and Surgeons, Chicago	(1896)	76
Indiana University	(1917)	87
Johns Hopkins University (1914) 89; (1916) 88, 93;	(1917)	84, 88
Harvard University (1913) 90;	(1917)	88
University of Michigan Medical School	(1904)	78
University of Minnesota	(1918*)	85

College LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Chicago	(1900)	Iowa
Hahnemann Medical Coll. and Hospital of Chicago	(1906)	Illinois
Northwestern University	(1914)	S. Dakota
Tulane University of Louisiana	(1910)	Louisiana
St. Louis University	(1915)	Missouri
Cincinnati College of Medicine and Surgery	(1877)	Ohio
Marquette University	(1915,2)	Wisconsin

* A year's internship in an approved hospital is required for graduation from the University of Minnesota Medical School, but only completion of a four-year medical course is required for licensure in Minnesota.

North Dakota July Examination

Dr. G. M. Williamson, secretary of the North Dakota State Board of Medical Examiners, reports the oral, practical and written examination held at Grand Forks, July 3-6, 1917. The examination covered 13 subjects and included 110 questions. An average of 75 per cent. was required to pass. Of the 3 candidates examined, 2 passed and 1 failed. Seven candidates were licensed through reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery	(1916)	77.5
University of Minnesota	(1916)	80.5
FAILED		
University of Michigan Medical School	(1911)	68.8

College LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Bennett Medical College (1910) Nebraska;	(1912)	Illinois
Rush Medical College	(1886)	Indiana

University of Michigan Medical School	(1911)	Michigan
Minneapolis College of Physicians and Surgeons	(1911)	Minnesota
University of Minnesota	(1914)	Minnesota
St. Louis University	(1915)	Minnesota

Book Notices

ELEMENTS OF FIELD HYGIENE AND SANITATION. By Joseph H. Ford, B.S., A.M., M.D., Colonel, Medical Corps, U. S. Army. Approved for Publication by the Surgeon-General, U. S. Army. Cloth. Price, $1.25 net. Pp. 248, with 152 illustrations. *Philadelphia: P. Blakiston's Son & Co., 1917.*

This manual, which is one of the many approved for publication by the Surgeon-General, concerns the principles involved in keeping troops healthy. After a brief introductory chapter, the author discusses personal hygiene, the march, camps, water, the mess, camp diseases, and illustrative regulations. The section on personal hygiene is modern in its point of view, giving special attention, as do all of the chapters, to the experiences of Pershing's expedition into Mexico and of the warring nations abroad in the present war. Perhaps a little too much space is devoted to the numerous methods for getting rid of lice, some six or eight methods being described, which would seem to indicate that none is satisfactory. The section devoted to the march is quite brief, but every sentence is practical and important. The most extensive portion of the book is that devoted to the camp. This is fully illustrated by pictures and diagrams of actual camps in various expeditions, and it takes up questions of choice of camp sites, shelter, disposal of waste, care of foodstuffs, bathing facilities, latrines, incinerators, etc. The chapter on camp diseases is also brief but accurate and practical. The book is based largely on methods practiced in our own Army, and frequent reference is made to special orders and regulations that have been issued at various times by the Surgeon-General's Office. The officer who studies this book and supplements his knowledge by securing the regulations referred to will find himself excellently equipped for rendering his duties satisfactorily.

DISEASES OF THE CHEST AND THE PRINCIPLES OF PHYSICAL DIAGNOSIS. By George William Norris, A.B., M.D., Assistant Professor of Medicine in the University of Pennsylvania, and Henry R. M. Landis, A.B., M.D., Assistant Professor of Medicine in the University of Pennsylvania. With a Chapter on the Electrocardiograph in Heart Disease by Edward B. Krumbhaar, Ph.D., M.D., Assistant Professor of Research Medicine in the University of Pennsylvania. Cloth. Price, $7 net. Pp. 782, with 413 illustrations. Philadelphia: W. B. Saunders Company, 1917.

In the first 250 pages, the examination of the lungs and the examination of the circulatory system are considered. The principles underlying physical examination are especially emphasized. Technic and interpretation of signs are also clearly set forth. The third part (pp. 257-759) is taken up with the clinical features of chest diseases. The topics are treated briefly, with emphasis laid on physical signs and the underlying morbid anatomy. The subject of treatment is omitted. The especial feature of the work is the stress placed on the principles underlying physical diagnosis. To this end diagrams, drawings and photographs illustrating normal and pathologic anatomy are fully utilized. Most of these are of surpassing excellence. Those of frozen sections are wonderfully instructive, and if carefully studied will be of material help to student or practitioner in clearing up the meaning of physical signs that otherwise he might accept solely on authority. Krumbhaar has a brief but good chapter on the electrocardiograph. We might wish that the roentgen ray as a means of diagnosis had received a little fuller consideration. And we wish that some one would explain why the unclosed septum of the ventricles in congenital heart disease is so often called "imperforate," as it is by our authors. Are we wrong in thinking it is a plain misuse of the term? One might question the advisability of making a classroom textbook of this work for beginners in the study of physical diagnosis. But for the more advanced student, the hospital intern, or the practitioner who desires to perfect himself in this art, it should be a most stimulating and helpful book.

Medicolegal

Cannot Pay Experts for Examining Defendants

(State vs. Weeks (N. H.), 101 Atl. R. 35)

The Supreme Court of New Hampshire, in overruling exceptions to an order disallowing a claim against the county for the fees of experts employed to examine the defendant, who was indicted for murder and the defense of insanity suggested, says that the case appeared to be one of new impression. No precedent has been found for the course here urged in behalf of the defendant; the proposition being that the public should pay the expenses incurred by the defendant outside of court in the preparation of his defense. Of course there can be no common-law authority for such an order. It required legislative action to give the defendant the rights he would have in a civil cause. It is manifest that a right so acquired cannot be extended so as to include a privilege or right never known to the common law, and in no way created by any statute. The statute governing the rights of persons charged with the more serious crimes was revised in 1901, and again amended in 1907. The subject has evidently received careful legislative consideration, and there is nothing in any of the statutes which have been enacted which gives color to the idea that authority has been conferred to charge the public with the expenses incurred by the defendant in preparing for trial, except so far as counsel fees and those for travel and attendance of witnesses are concerned. It was urged by the state in argument that the statute providing that "all legal costs attending the arrest, examination, or conveyance of an offender, except when directed or approved in writing by the counsel of the state, or county commissioners, shall be paid by the complainant" was applicable to this claim, and that it must be disallowed because its incurrence had not been previously authorized by the state's counsel. But that statute has no application to the claim here presented. It relates solely to expenses incurred in prosecutions for alleged crimes, and has nothing to do with the regulation of allowances to or on behalf of defendants. The state's contention that the court has no power to allow this claim is sound. But the reason for this result is that no such authority has been conferred on the court, and not that the consent of the state's counsel is essential.

Misbranding of a "Remedy"

(Simpson vs. United States (U. S.), 241 Fed. R. 841)

The United States Circuit Court of Appeals, Sixth Circuit, affirms a conviction of defendant Simpson of violating the Food and Drugs Act as amended in 1912 by the interstate shipment of certain drugs alleged to have been misbranded in that the label of the carton or package containing the drug, as well as a circular therein, contained false and fraudulent statements regarding the curative or therapeutic effect of the drugs. The court says, among other things, that the information charged that the shipment was made by the defendant "trading as Dr. C. M. Simpson's Medical Institute," and that the name of the article given on the label of the carton was "Dr. C. M. Simpson's Cerebro-Spinal Nerve Compound." The natural construction would be that it was the defendant whose knowledge and reckless and wanton disregard of the truth was intended to be charged. The court also thinks the information should fairly be interpreted to mean that the misrepresentations were intended to accompany the bottles into the hands of the consumers. It alleged that the shipment consisted of "certain packages," and that the packages contained the circular or pamphlet later described therein; that one of the alleged misrepresentations appeared "on the label of the carton aforesaid," and that the other was "included in the circular or pamphlet aforesaid." It is matter of common knowledge that proprietary medicines in bottles are usually sold to the consumer in cartons, and that the latter usually contain circulars or other advertising matter. The court was not impressed with the suggestion that the circular was charged to have been inside "the article of drugs."

The defendant's compound was not only represented generally to be a valuable remedy for the treatment of all diseases "resulting from diseases of the brain, spinal cord and medulla oblongata, and the nerves given off from each," "a remarkable discovery for the treatment of all nervous diseases," but also a "remarkable discovery for heart troubles," as well as a "most valuable remedy for nervous prostration, mania, melancholia and neurasthenia." There was substantial testimony from competent medical witnesses that there is no remedy applicable to all the diseases mentioned; that medical science and medical experience furnish no support for the broad claims made for the defendant's remedy; that "there is no one medicine that will prove a valuable remedy for all" the diseases enumerated. There was further substantial testimony from competent witnesses that bromids, which constitute a prominent ingredient in the defendant's remedy, are sedative in their nature and, in ordinary doses, not stimulating; that while thus helpful in quieting an exalted or excited state of the nerves, as in many cases, including some cases of mania, they are not only not helpful, but are positively injurious, in depressed conditions, as in melancholia; that there is no one remedy for all spinal diseases, or for all cases of neurasthenia, or heart trouble, or for all cases of melancholia or of mania; that some diseases of the heart require sedatives, others stimulants, etc.; that the defendant's compound was dangerous to intrust to the hands of a layman. The defendant's proposition that the presence of ammonium carbonate neutralized the effect of the bromids as depressants was denied by medical witnesses for the government. True, it appeared that bromids are beneficial, at least as a palliative in quieting the nerves and inducing sleep, in ordinary cases of nervous excitability, and there was testimony on the part of the defense that several persons had received benefit, indeed, many of them claimed to have been cured, by the use of the defendant's remedy; but such testimony, at the most, bore only on the question of fact whether the alleged representations were, as made, false and fraudulent. There was still room for a conclusion that substantial mischief resided in the claim of a universally efficacious remedy for the numerous and widely prevalent maladies in question; for the term "remedy" must at least imply a curative tendency, although not, of course, guaranteeing a cure.

Society Proceedings

COMING MEETINGS

American Association of Anatomists, Minneapolis, Dec. 27-29.
American Physiological Society, Minneapolis, Dec. 27-29.
Society of American Bacteriologists, Washington, D. C., Dec. 27-29.

SOUTHERN MEDICAL ASSOCIATION

Eleventh Annual Meeting, held at Memphis, Tenn., Nov. 12-15, 1917

(Concluded from page 2144)

The Normal College as a Factor in the Dissemination of Public Health Knowledge in the South

Dr. U. F. Jones, Hattiesburg, Miss.: The normal schools are among the few largest factors in the educational scheme of this country. The normal school is not doing justice in training its teachers in health work unless it has a clinic for the diagnosis of such defects as they will constantly find in their own schoolrooms.

Oral Sepsis and the Anemias

Dr. M. L. Graves, Galveston, Texas: Anemia constitutes but one of the numerous clinical manifestations of sepsis or infection, whether it originates in the mouth or elsewhere. It is a fairly constant symptom in all the grave infections, and to a more moderate extent in the less severe ones. Sufficient is known at present to entitle us to more than a suspicion that William Hunter was correct in believing that pernicious or infective anemia should be laid at the door of mouth infection. In one case, infected teeth were removed; the patient made such rapid and marked improvement that he has resumed a laborious occupation, with the appearance of health and a blood exhibit approximating the normal. Cases of secondary anemia, associated with arthritic disease, have responded but poorly to blood tonics, such as iron. One case, in a recent experience, responded rapidly to an autogenous vaccine made from the removed tonsils containing abscesses, and the symptoms have improved in a notable way, while resistant to all other treatments, including antistreptococcic serums and stock vaccines. These experiences have led me to the belief that mouth infections are frequently the cause of acute and chronic illnesses, with or without anemia, and to the insistence that every focus of infection be removed in the effort to restore health.

Oral Sepsis and Arthritis

Dr. J. Heyward Gibbes, Columbia, S. C.: A proper investigation of the gingivae, teeth and alveolar processes must include roentgenographic studies. The important relationship of chronic pyogenic infections to a large group of the arthropathies has been conclusively demonstrated, and the first step in the management of these cases should consist in a systematic search for foci of infection. No one portal of entry for infecting micro-organisms should be allowed to obscure the importance of investigating all possible sources of infection.

Oral Sepsis and the Cardiovascular System

Dr. Alexander G. Brown, Richmond, Va.: Focal infection of the mouth, chronic alveolar abscess, chronic pericementitis, acute and chronic infection of tonsils and other oral, nasal and other cavities adjacent, produce serious, grievous and dangerous diseases of the heart, endocarditis, myocarditis, pericarditis and pancarditis.

Relation of Oral Sepsis to the Nervous System

Dr. E. Bates Block, Atlanta, Ga.: I have under my care several epilepsy patients in whom pyorrhea alveolaris or apical abscesses existed, and no other cause for epilepsy could be found after carrying out the usual methods of investigation. In view of the absence of other discoverable causes and the results obtained, I was inclined to think these cases due to this focal infection.

Relation of Chronic Infection to Thyroid Deficiency

Dr. Harvey G. Beck, Baltimore: Glandular insufficiency is of common occurrence, and is frequently overlooked. Chronic infections are almost invariably associated with glandular syndromes. These infections are usually focal in character, and seem to occur with the same relative frequency in insufficiency of the thyroid, pituitary, gonads and suprarenal. Rheumatism shows a special tendency to involvement of the thyroid. In seventy-eight of the 100 cases in my series at the time of examination, the patients suffered with chronic infections, mostly focal in character; ninety-four either showed evidence or gave a history of infection antedating the onset of symptoms. In several instances, well marked symptoms of thyroid deficiency developed after protracted acute fevers. Symptoms appeared in two cases following typhoid; one, malaria; one, puerperal infection, and one, repeated attacks of rheumatic fever. Oral sepsis and inflammatory diseases of the gallbladder and appendix play an important part in the relation of chronic focal disease and hypothyroidism, comprising 63 per cent. of the 255 infections present in the series. The remaining 37 per cent. form a miscellaneous group, and include among others pelvic infection, pyelitis, arthritis, amebic dysentery, anal fistula, syphilis and tuberculosis. Oral sepsis embracing tonsillitis, root abscesses, pyorrhea, sinusitis, etc., represents 36 per cent. of the total infections, and occurred in fifty-six of the cases. Chronic appendicitis was observed in thirty-two cases, and cholecystitis and cholelithiasis in twenty-four. In several instances, symptoms of both appendicitis and cholecystitis existed in the same individual.

The Wild Rats of the Southern States as Carriers of Spirochaeta Icterohemorrhagiae

Drs. James W. Jobling and A. A. Eggstein, Nashville, Tenn.: Published in The Journal, Nov. 24, 1917, p. 1787.

Classification and Treatment of the Acute Diarrheal Diseases in Infancy

Dr. John L. Morse, Boston: Diarrhea from an excess of fat in an artificial food is not at all uncommon. When the disturbance is a mild one, the stools are not much changed in color, but contain many small, soft curds and some mucus, and are somewhat more acid in odor and reaction than usual. Sometimes they are gray and shiny, and in other instances, when there is an excess of neutral fat, they are creamy in consistency and color. Sometimes they look like curdled milk. In other instances they are bright yellow and have an oily appearance. They are seldom green, unless there is also a disturbance in the digestion of sugar. In the worst cases, they are watery, strongly acid, and cause marked irritation of the buttocks. When this happens, the fat is in combination with the alkaline salts, especially sodium. As the result, there is a considerable loss of alkaline salts in the stools. A relative acidosis is thus produced, with an excess of ammonia in the urine. The symptoms of acid intoxication may then develop. A high fever is not uncommon in these severe cases. The prognosis depends on the severity of the symptoms, but is in general good, unless there is a marked acid intoxication. The treatment consists in the complete elimination of fat from the food. In most instances it is advisable to give a cathartic in the beginning, and to starve for from twelve to twenty-four hours. In the cases with acid intoxication, sodium bicarbonate should be given in some way and a food containing considerable amounts of sugar, preferably in the form of glucose or maltose. In the less severe cases, protein is usually well tolerated; and the caloric value of the food, which is much reduced by the withdrawal of the fat, can be made up by increasing the amount of carbohydrates. Fat can usually be cautiously added again in a few days. How rapidly it can be added can be determined only by observation of the symptoms, and examination of the stools.

Diarrhea is more often due to an excessive protein in human milk than to an excess of either fat or lactose. The protein is most likely to be excessive in the early days of lactation, and at the time of menstruation. An excess of protein may also be due to excitement, anxiety and nervousness, or to fatigue or lack of exercise. The diarrhea is usually not serious. The baby is ordinarily not very sick, and the temperature is but little, if at all, elevated. The stools are loose or watery, and often contain fat curds as the result of the increased peristalsis and the consequent interference with absorption. The stools are usually brownish yellow, but may be green. They often contain mucus. The odor is not characteristic; the reaction is alkaline or feebly acid. They are not irritating to the skin.

The most important element in the treatment of infectious diarrhea is the diet. The character of the diet depends on the variety of the micro-organism that is causing the disease. These micro-organisms can be divided, as far as the determination of the diet to be used is concerned, into two groups: (1) the various forms of the dysentery bacillus and the other organisms, except the gas bacillus, which cause the disease, and (2) the gas bacillus and allied organisms. The other organisms, although of many different varieties, are grouped with the dysentery bacilli, because as regards their growth and the production of toxic substances from protein and carbohydrate mediums, they behave in the same way.

Malaria in Infants

Dr. Morgan Smith, Little Rock, Ark.: Malarial infection is less frequent in the infant than in the child or adult, because of the vigilance on the part of the mother to protect her baby from the bites of all insects. The treatment of malaria in the infant does not differ from that employed in the child or the adult.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

December, XIV, No. 6

1 *Diagnosis of Age of Fetus by Roentgenograms. J. H. Hess, Chicago.—p. 397.
2 *Internal Hydrocephalus. W. E. Dandy and K. D. Blackfan, Baltimore.—p. 424.
3 *Survey of Juvenile Delinquents. H. K. Faber and A. J. Ritter, San Francisco.—p. 444.
4 *Cause of Sudden Death in Status Lymphaticus. D. Symmers, New York.—p. 463.
5 Treatment of Eight Cases of Secondary Anemia in Infants by Blood Transfusion. C. G. Kerley, New York.—p. 470.

1. **Roentgenograms and Age of Fetus.**—Hess is convinced that the roentgenographic method of determining the age of the fetus is more reliable than determination of age based on length and other measurements, since osseous development is more regular and offers many more factors for consideration. In the early months more accurate determination is possible than in the later months.

2. **Internal Hydrocephalus.**—Twenty-six cases of internal hydrocephalus were studied by Dandy and Blackfan, fifteen of the obstructive and eleven of the communicating variety, by means of intraventricular and intraspinal injections of phenolsulphonephthalein.

Postmortem examinations demonstrated an obstruction in every case in which an obstruction had been shown clinically by this test. The obstruction may be a congenital malformation or inflammatory process or tumor, and occur at any part of the ventricular system, but usually at the aqueduct of Sylvius or the foramina of Luschka and Magendie. Hydrocephalus results because the fluid is mechanically prevented from passing from the ventricles, where the fluid forms, to the subarachnoid space, where it is normally absorbed, and where only it can be absorbed. Obstructive and communicating hydrocephalus are essentially the same, and in reality all are due to obstruction. In the obstructive variety the obstruction is in the ventricular system; in the communicating variety the obstruction is in the subarachnoid space. Obstructive hydrocephalus may, by operation or spontaneously, change to communicating hydrocephalus, or the reverse may occur spontaneously. Careful studies with the phenolsulphonephthalein test will indicate these possibilities. The authors are convinced that the surgical treatment of internal hydrocephalus has now a definite anatomic basis and hopeful prospects.

3. **Juvenile Delinquents.**—Faber and Ritter's survey is of 110 juvenile offenders. The physical findings are, on the whole, those of neglected hygiene, secondary in most cases to poverty. The mental findings show that of the boys studied 43.6 per cent. were normal, 25.5 per cent. dull normal, 17 per cent. borderline, 9.6 per cent. morons, and 4.3 per cent. imbeciles. The authors believe that for the normal boys improved environment, improved personal hygiene, and better general education would have made useful citizenship possible. The first indication is obviously to separate the normals and dull normals from the rest, to keep the borderline cases under observation, with careful and systematic attempts to education in order to determine and develop latent ability; and finally to segregate promptly those who are beyond question feebleminded. The authors prefer the Yerkes-Bridges-Point Scale to the Binet-Simon tests. They claim greater accuracy for the former.

4. **Sudden Death in Status Lymphaticus.**—Symmers says that among the first 4,000 necropsies at Bellevue Hospital, status lymphaticus was encountered in 249 subjects, or in 6.2 per cent.; 118 examples of status lymphaticus were encountered; 89 cases belonged to the recessive type; 42 were borderline cases. Of the 118 cases of straightforward status lymphaticus, the thymus was enlarged in every case. The faucial tonsils were enlarged 61 times; the lingual tonsils 58 times; the pharyngeal lymphoid follicles 45 times; Peyer's patches and the solitary follicles 105 times; axillary nodes 11 times;

inguinal nodes 12 times, and the cervical nodes 15 times. The spleen was small or normal in size in 68 cases; the malpighian follicles were hyperplastic 101 times. Of 89 cases of recessive status lymphaticus the thymus was weighable 19 times, and the average was 18 gm. In the remaining 70 cases the thymus was completely replaced by fat. The faucial tonsils were hyperplastic 25 times; the lingual tonsils 32 times, and the pharyngeal tonsils 19 times. Peyer's patches were atrophied 61 times; solitary follicles 37 times. The splenic follicles were enlarged 37 times and atrophied 39 times. The spleen was normal or small in size in 52 cases (71 per cent.).

According to Symmers, sudden death in status lymphaticus may be occasioned, first, by an anaphylactic reaction due to sensitization of the body by a specific nucleoprotein formed in the lymph nodes as the result of necrosis of numbers of germinal follicles. Before the so-called anaphylactic incubation period has expired the tissues are again subjected to the action of the same protein formed in the same type of tissue in response to an apparently trivial injury, and, in this way, the anaphylactic reaction is completed. Second, spontaneous rupture of an hypoplastic cerebral vessel, or rupture following apparently trivial injury, the deficiency in the vessel wall being most noticeable in the muscular coat.

Boston Medical and Surgical Journal

December 6, CLXXVII, No. 23

6 *Radioactive Substances in Treatment of Malignant Disease. W. Duane, Boston.—p. 787.
7 Orthcarteriotony (New Form of Pharmacodynamic Energy). C. J. Enebuske, Sater, Sweden.—p. 799.
8 *Tendon Suture. T. W. Harmer, Boston.—p. 808.
9 *Testing and Recording Vasomotor Reflexes of Skin. E. A. Tracy, Boston.—p. 810.
10 Speech Correction—New Medical Study and Educational Movement. W. B. Swift, Boston.—p. 811.

6. **Radioactive Substances in Treatment of Malignant Disease.**—Over 500 new cases of malignant disease a year are seen at the Huntington Hospital, almost all of which receive treatment with radioactive substances. In some cases, very satisfactory results have been obtained, giving what may be called apparent cures. In others, marked alleviation has been observed, with prolongation of life and increased comfort; and in other cases still, no benefit, and possibly added discomfort, may have been produced. Duane's paper contains a detailed statement of methods employed in preparing the radioactive substances, of the methods of measuring the dosage, and of the general principles on which the character of the treatment is determined; a description of the scientific principles employed in the preparation of the applicators and of the instruments for measuring their radioactivity, and a brief statement of the kinds of cases in which the various methods are used and the dosages actually employed.

8. **Tendon Suture.**—Harmer uses silk and overcasts the lateral margins of both ends of a divided tendon. The overcasting starts about the width of the tendon or a little more back from the point of division, and comprises several whippings about the side of the tendon down to the line of division, each loop including somewhat less than one-quarter of the circumference of the tendon. When a tendon is ready to be brought together, each end then carries two stitches and each stitch two ends. The two parts of the tendon are now brought together and the two suture-ends nearest the line of division on one side are tied. The two pairs of stitch-ends on the other side are then similarly tied. The long ends so tied alongside the tendon seem to serve as lateral splints.

9. **Method of Testing Vasomotor Reflexes of Skin.**—In a normal person, when the skin is lightly stroked (with a pressure of about 2 ounces) there appears on the stroked surface a brief deepening of the skin tint lasting up to eight or twelve seconds, and then a white streak appears that lasts for a couple of minutes. The blood vessels in the stroked area dilate and then contract. In each case tested four tests are made: 1. The skin of the left side of the face is stroked, and the length of time the reflex vasodilatation lasts and the time it takes the reflex vasoconstriction to appear is noted; this is done with the aid of a stop-watch. The length of time the vasoconstriction lasts is also noted. 2. The same is done for the right side of the face. 3. The left forearm, on the palmar surface, an inch or so from the wrist, is similarly stroked. The time the vasoconstriction appears and its duration are noted. 4. The same is done for the right forearm. A study of the reactions in normal and diseased individuals has led to important findings of use in diagnosis.

Cleveland Medical Journal

November, XVI, No. 11

11 Utilitarian Construction of Living Things and Medical Student. T. L. Patterson, Kingston, Canada.—p. 707.
12 Tracheal Displacement and Compression in Intrathoracic Disease. V. C. Rowland, Cleveland.—p. 715.
13 Spontaneous Explosion of Artificial Eyes. R. B. Metz, Cleveland. —p. 719.
14 Extracts from Paris' Pharmacologia. T. Sollmann, Cleveland. —p. 721.
15 Nitrous Oxid and Oxygen Analgesia in Operations on Ear, Nose and Throat. S. H. Large, Cleveland.—p. 725.

Florida Medical Association Journal, Jacksonville

November, IV, No. 5

16 Tuberculosis Problem. R. H. McGinnis, Jacksonville.—p. 127.
17 Electricity and Vibration in Gastro-Intestinal Affections. G. M. Niles, Atlanta, Ga.—p. 130.
18 Case of Maculo-Anesthetic Leprosy. J. L. K. Smith, Jacksonville.—p. 134.

Georgia Medical Association Journal, Augusta

November, VII, No. 7

19 Renal Surgery. E. G. Jones, Atlanta.—p. 131.

Journal of Nervous and Mental Disease, Lancaster, Pa.

November, XLVI, No. 5

20 *Three Cases of Chronic Progressive Lenticular Degeneration, with Mental Deterioration. J. J. Thomas, Boston.—p. 321.
21 Dispensary Work in Diseases of Nervous System. S. E. Jelliffe, New York.—p. 333.
22 *Brain Tumor in Case Clinically Considered to Be Paresis. L. G. Lowrey, Boston.—p. 347.
23 *Dilatation of Lateral Ventricles as Common Brain Lesion in Epilepsy. D. A. Thom, Palmer, Mass.—p. 355.

20. **Chronic Progressive Lenticular Degeneration.**—The cases reported by Thomas comprise three children in one family, similarly affected, thus showing the familial character of Wilson's disease, with no discoverable heredity. These cases differ in several essential points from those reported by Wilson, first in the character of the tremor, the absence of fixed spastic smile, the dysphagia, and especially in the evidence of the affection of the pyramidal tracts. There was also no evidence of any affection of the liver so far as could be determined. In some respects these cases much more closely resemble multiple sclerosis, yet there are various and important reasons for rejecting this view. First, the distinctly familial character of these cases with three children out of six in one family affected, and a fourth probably beginning to show the characteristic signs, which are so similar that even the parents now have grown to expect the appearance of the symptoms as the children approach the age of 8 years. Then the absence of nystagmus and changes in the eyegrounds, and the steady progressiveness of the disease, the absence of remissions in the symptoms, and most important of all, the mental deterioration must be considered. These cases resemble those described under the title of pseudosclerosis. They showed no pigmentation of the skin or cornea, no epileptiform attacks, no enlargement or diminution in size of the liver, and were distinctly familial in character.

22. **Brain Tumor Clinically Considered to Be Paresis.**—Lowrey presents a study of a case of glioma involving the third and posterior portion of the lateral ventricles and the corpus callosum. The case was diagnosed as paresis but no evidence of paresis was found in the microscopic study of the cortex.

23. **Dilatation of Lateral Ventricles as Brain Lesion in Epilepsy.**—Since January, 1913, Thom has collected the brains of 75 epileptic subjects, the results of 82 consecutive postmortem examinations; 57 of this group presented gross brain lesions; 31 of these 57 cases presented cortical lesions as well as dilated ventricles; 16 showed lesions of the cortex alone, while the remaining 14, with a normal looking cortex, had dilated lateral ventricles. Of the entire 43 cases reveal-

ing cortical lesions, the hind portion of the brain was by far the most frequently affected, especially the occipital lobes. The convolutional shrinkage in this region was often marked, and the appearance was that of an acquired condition rather than one of congenital origin. Next in order of frequency was the general cerebral gliosis, where the entire cerebrum appeared to be involved. Softenings were noted only six times, once being general, the other five times being focalized. There were 29 cases of well defined sclerosis of the basilar and cerebral vessels. Gliosis and atrophy of one hemisphere alone was noted in 8 cases, equally divided between the two hemispheres. In the dilated ventricle group were 41 cases; 27 of the brains in this group also had abnormalities of the cortex. The remaining 14 cases with dilated ventricles, where the cortex of the brain was not grossly abnormal but where the ventricular dilatation was of such a degree as to leave no doubt of its abnormality, raises the question in Thom's mind as to whether lesions affecting primarily the white matter may not be a factor in the production of epilepsy.

Southwestern Medicine, El Paso, Texas

November, I, No. 11

24 Medical Supervision of Industrial Employees. G. H. Fitzgerald, Bisbee, Ariz.—p. 12.
25 Pellagra. W. Howe, Las Vegas, N. M.—p. 15.
26 Treatment of Acute Bronchopneumonia in Children. C. A. Reinemund, El Paso.—p. 21.
27 Vital Statistics. C. Wilbur.—p. 26.
28 Tuberculosis and Asthma. O. H. Brown, Phoenix, Ariz.—p. 31.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Dublin Journal of Medical Science

August, CXLIV, No. 548

1 Conservation of Youth. E. Wooton.—p. 73.
2 Maternity and Child Welfare in Dublin County Borough. E. G. A. Webb.—p. 86.
3 Case of Melena and Hematemesis Neonatorum. B. Solomons. —p. 97.

September, No. 549

4 Summary of Surgical Technic in Nerve Lesions of Modern Warfare. C. G. Cumston.—p. 137.
5 Wassermann Test as Means of Estimating Prevalence of Syphilis in Community. G. R. Darling.—p. 147.
6 *Pathologic Report of Rotunda Hospital for Two Years Ending Oct. 31, 1916. R. J. Rowlette.—p. 152.

October, No. 550

7 Shell Shock. F. C. Purser.—p. 201.
8 Early Diagnosis of Venereal Disease and Laboratory Aids to Successful Treatment. J. McCullagh.—p. 212.

6. **Pathologic Report of Rotunda Hospital.**—Rowlette's report covers a period of two years, from Nov. 1, 1914, to Oct. 31, 1916. Curettings and other fragments removed for purposes of diagnosis were examined on 222 occasions. One case of tuberculous endometritis was encountered, associated with tuberculosis of the tubes. The great majority of curettings (114 out of 138) showed definite glandular changes, varying from moderate increase in number to considerable hypertrophy, with invagination of epithelium, and in eighteen cases, formation of cysts. Twenty-two cases of malignant disease of the uterus were dealt with by operation. Of these cases, fifteen were epithelioma of the cervix, and one adenocarcinoma of the cervix, three adenocarcinoma of the body, two sarcoma of the body, and one chorionepithelioma. Sixty-three cases of myoma were examined. In twenty-six secondary changes other than fibrosis, which is almost always present, had occurred. Of forty-one cases of salpingitis examined, only seven were tuberculous. Of forty-eight cysts of the ovary, four were dermoids, eight syphilitic cysts, twenty-four smooth walled cystadenoma, and thirteen papillary cysts, eight of which gave histologic evidence of malignancy. Three solid tumors of the ovary came under examination, of which number two were carcinomas, and the other was a fibroma.

Journal of Tropical Medicine and Hygiene, London

November 1, XX, No. 21

9 Some Peculiar Bodies in Blood of Certain African Snakes. J. E. L. Johnston.—p. 241.
10 Etiology of Craw-Craw (Nodular Dermatitis). A. Pijper.—p. 242.

November 15, No. 22

11 Two Unusual Cases of Filariasis in North Queensland. A. Breinl and H. Priestley.—p. 253.
12 Value of Salvarsan in Relapsing Fever and Malaria. W. L. Peacock.—p. 254.

Lancet, London

November 17, II, No. 4916

13 Value and Limitations of Sanatorium Treatment. T. D. Lister. —p. 739.
14 *Tartar Emetic in Treatment of Malaria. A. W. Falconer and A. G. Anderson.—p. 743.
15 *Mortality from Postcholeraic Uremia. L. Rogers.—p. 745.
16 Epitheliomatous Neoplasms of Dorsal Aspect of Hand. C. G. Cumston.—p. 746.
17 Case of Twin Pregnancy with One Macerated Fetus. J. B. Hellier.—p. 748.
18 Case of Congenital Angioma of Tongue. F. M. Hughes.—p. 749.
19 Perfusion of Heart with Nicotin. D. T. Barry.—p. 759.

14. **Tartar Emetic in Treatment of Malaria.**—Eight cases were treated intravenously with tartar emetic. They include infections both with benign and malignant tertian parasites. The tartar emetic was used in a 2 per cent. solution, to which 0.5 per cent. phenol was added to preserve its sterility. Of these eight cases there were two mixed infections, one subtertian malaria and five benign tertian malaria, three of which showed gametocytes. Of the two mixed infections, the crescents disappeared in both cases, the benign tertian parasites persisting in one and disappearing in the other. In the subtertian crescent infections the crescents disappeared after three injections of tartar emetic. In spite of the disappearance of the crescents the patient had three typical clinical attacks of malaria, though the parasites could not be demonstrated again in the peripheral blood stream. Of the five benign tertian infections, in none did the parasites disappear from the blood stream till large doses of quinin had been administered. In the three patients in which gametocytes were seen, in two the gametocytes were not found subsequent to the tartar emetic treatment; in the other patient the gametocytes persisted. Neither in the subtertian cases, nor in the benign tertian cases, was any marked clinical improvement noted, and in the benign tertian cases the tartar emetic did not appear to exert any effect whatever on the parasites.

15. **Mortality from Postcholeraic Uremia.**—Rogers records a 70 per cent. reduction in the mortality through the intravenous injections of sodium bicarbonate. Two solutions are now used. The first is the hypertonic saline, which Rogers has given with much success in well over 1,000 cases during the last ten years. It consists of 120 grains of sodium chlorid with 4 grains of calcium chlorid to a pint of sterile water. For several years now Rogers has omitted the potassium chlorid of Ringer's fluid, as some physiologists regard this as an unnecessary and possibly depressant addition, and the increasingly favorable results obtained in recent years show that it is certainly not required. The second, or alkaline solution, contains 60 grains of sodium chlorid and 160 grains (2 per cent.) of sodium bicarbonate, and is thus also a hypertonic fluid. To avoid decomposition of the bicarbonate on boiling, the chlorid solution is sterilized before the bicarbonate is added, and the latter sterilized in packets in an autoclave and subsequently added.

In patients admitted early without prolonged suppression of urine the hypertonic sodium chlorid solution only is used at the first transfusion, the quantity being regulated by the specific gravity of the blood. If the case is sufficiently severe to require further intravenous injections, at each subsequent transfusion 1 pint of the alkaline solution is first given and followed by the hypertonic chlorid solution in the quantity indicated by the specific gravity of the blood. In patients admitted late with suppression of urine for twelve hours or more the alkaline solution is given at the first injection as well. Moreover, it is used in all cholera patients with deficient urinary secretion without much concentration of the blood as shown by the specific gravity, in which the normal saline was formerly advised by Rogers. As long as the specific gravity of the blood is not much below the normal, such as not less than 1,050, a pint of the alkaline solution can always be safely given intravenously for deficient secretion of urine. In addition, this solution is now used in the place of normal saline by the bowel when formerly advised.

Archives des Maladies de l'Appareil Digestif, etc., Paris

September, IX, No. 6, pp. 297-360

20 Mathieu and the Pathology of the Digestive Apparatus. J. C. Roux.—p. 297.
21 *Hypertrophic Stenosis of the Pylorus in Adult. L. Urrutia. p. 333.
22 *Dyspepsia After Loss of Teeth. A. Mollière.—p. 337.
23 *Stomach Disturbances in the Gassed. E. Agasse-Lafont and J. C. Roux.—p. 341.

21. **Stenosis of the Hypertrophied Pylorus in Adult.**—The woman of 43 had eight children and had always been well until the last year. The assumption of cancer at the pylorus was sustained by occult blood in the stools. Several ascarides were found at the resection operation but nothing to suggest malignant disease. Urrutia believes that the helminthiasis must have been responsible for the occult blood.

22. **Dyspepsia after Loss of Teeth.**—Mollière provides at the regiment infirmary a special diet for men without teeth. It is planned so it will not hurt the gums and yet will keep up the habit of mastication. The vegetables, etc., are cooked extra thoroughly but are not mashed. The meat is given in the form of meat juice or finely chopped meat. As men with defective or no teeth do not masticate normally, there is not the normal stimulus for secretion of saliva. To remedy this he adds condiments in moderate amounts to the food: pepper, salt, thyme, laurel and onions.

23. **Injury of the Stomach in the Gassed.**—Lafont and Roux give the details of five cases in which gassed soldiers suffered from the stomach the next day, vomiting after each meal for several days and then developing all the symptoms of gastric erosion or ulcer. One man vomited blood on two occasions. Another had melena and the erosion seemed to be in the duodenum. Gastro-enterostomy was done in this case and all symptoms subsided. No operation was attempted in the other cases, and only partial improvement has been noted to date under strict courses of treatment as for gastric ulcer. The gas was of the "weeping gas" type.

Archives de Médecine et de Pharmacie Militaires

March, LXVII, No. 3, pp. 309-452

24 *Flying Base Hospital. (Nouveau type de formation chirurgicale mobile.) L. Plisson.—p. 309.
25 Indications for Different Types of Artificial Legs. M. Séron. —p. 353.
26 *Identification of the Dead in War. L. Bosredon.—p. 369.

24. **Flying Base Hospital.**—Plisson's system of interchangeable automobile units to constitute a base hospital that can be enlarged or reduced at need and moved rapidly by its own power to points where it is needed at different times, was described recently in THE JOURNAL, page 1914. The complete details of equipment, etc., are described here, with illustrations.

26. **Identification Tags.**—Bosredon comments on the large number of "missing" in each of the belligerent armies. This testifies that the present methods of identification of the dead have not proved efficient. He describes the various methods that have been adopted and some that have been discarded. In Italy, since 1915, the soldiers have been wearing a hinged metal tag that contains a folded paper with full identification details. The two small sheets of metal thus form a case suspended by holes at the outer end. The Austrians use a similar double metal tag. Russian soldiers carry no provision for identification. The Belgian army insists on conveying all cadavers to the rear, each division having a morgue with special vehicle. This permits identification at leisure. Bosredon has devised a wrist tag and already thousands have been distributed to the soldiers. It consists of a small metal plate with name and other details stamped on it in duplicate, above and below, with a line of perforations between. This permits the lower half to be torn off for identification purposes, while leaving the other half permanently on the cadaver. It is fastened to the wrist with a light metal chain and rivet. The details regarded as indispensable are the name and the year of enrolment on one side of the tag; the number of the recruiting office and the number given the recruit are on the back of the tag. The tags already in use can be utilized by adding the wrist chain.

Paris Médical

November 3, VII, No. 44, pp. 353-388

27 Malaria in French Forces in Macedonia. P. Carnot.—p. 353; E. Marchoux.—p. 360.
28 Technic for Examination of Blood in Malaria.—L. Tribondeau. —p. 364.
29 *Initial Symptoms of Malaria. Mauban.—p. 368.
30 Technic for Giving Quinin in Malaria. C. Garin.—p. 373.
31 Arsenic in Malaria. P. Carnot.—p. 379.

November 10, No. 45, pp. 389-404

32 Cardiovascular Disturbances in the Gassed. J. Parisot and L. Tixier.—p. 389.
33 *Epidemic of Scurvy. P. Harvier.—p. 394.
34 Thorium Sulphate in Intestinal Infections. Fenestre and Gérard. —p. 398.
35 *Verrucous Lesions Simulating Verrucous Tuberculosis. H. Gougerot.—p. 399.

29. **Initial Symptoms of Malaria.**—This entire issue of the *Paris Médical* is devoted to diseases of exotic origin, malaria in particular. Mauban analyzes the findings in seventy-two cases of primary malaria in August in Macedonia, commenting especially on the sudden severe onset. The weakness was so extreme in all but one case that the men had to lie down where they were, too weak even to fire their gun to call attention to their sudden sickness. Bronchitis with spasmodic coughing was almost the rule, notwithstanding the warm weather, as an early manifestation of the malaria. In 75 per cent. of his cases the eyes were bloodshot and tender, in addition to the ordinary symptoms of malarial infection.

33. **Epidemic of Scurvy.**—Harvier describes the scurvy he has encountered in soldiers who have been unable to get any fresh vegetables for periods of from four to six months. He sought out the camp from which these men came, and found 184 excused from duty on account of "abscess," "lymphangitis," "rheumatism" or other diagnosis, but at a glance he recognized scurvy in all. Ranging the other men in two rows, he passed along inspecting the gums of each, and in almost 20 per cent. he found the gingivitis of scurvy. Fully 95 per cent. of the body of 817 men had had scurvy.

35. **Verrucous Nontuberculous Skin Lesions.**—The importance of the verrucous epidermitis which Gougerot describes lies in its deceptive resemblance to verrucous tuberculous affections. Only the absence of antecedents, the multiple onset and rapid development distinguish it at first, but it usually heals at once under treatment with dressings impregnated with a 1:30 solution of resorcin, followed by paste of yellow oxid of mercury.

Presse Médicale, Paris

October 18, XXV, No. 58, pp. 597-604

36 *Stiff Ankle. Ducroquet.—p. 597.
37 Treatment of Imported Malaria. A. Manaud.—p. 599.

October 22, No. 59, pp. 605-616

38 *Tachyphylaxis. H. Busquet.—p. 605.
39 Quadrant Hemianopsia and the Cortical Center for Vision. A. Monbrun.—p. 607.
40 Plantar Paralysis. L. Moreau.—p. 609.
41 Technic for Laminectomy. E. Girou.—p. 610.
42 *Urine Test for Typhoid. H. Diacono.—p. 611.

36. **Stiff Ankle.**—Ducroquet gives a profusely illustrated review of the disturbances in the gait with ankylosed ankle.

38. **Tachyphylaxis.**—This term was coined to express the rapid immunization conferred by injection of a small preliminary dose. The immunization is complete in a few minutes, so that injection then of a large amount does not have the action that it would have had if the preliminary small dose had not been injected. Busquet reports experimental research in this line. Attempting to apply the conclusions to man, he was unable to detect any immunizing action from a preliminary small dose of colloidal metals. In animals, the tachyphylaxis was marked with certain drugs used by intravenous injection in the clinic. It was also evident in man with sodium nucleinate, chaulmoogra oil and the arsenobenzenes. A small preparatory dose of either of these enabled a large dose, given a few minutes later, to be tolerated without the reaction inevitable otherwise. The data already acquired justify the application of this principle of an immunizing preliminary dose in transfusion of defibrinated blood in case of hemorrhage; also with intravenous injection of organ extracts in cases of glandular insufficiency.

42. **Diagnosis of Typhoid from the Urine.**—Diacono's test is based on determination of the precipito-agglutinable substances in the urine under the influence of typhoid antiserum. He uses a set of test tubes with 20 c.c. urine, one containing normal urine. To each tube is added from 0.1 to 0.5 c.c. or 1 c.c. of typhoid antiserum. After incubation at 37 C. for three or four hours, a flaky sediment is apparent in the positive cases while the control tube keeps clear. The urine must not be filtered. A trace of salt added to the urine hastens the precipitation.

Progrès Médical, Paris

November 3, XXXII, No. 44, pp. 369-376

43 *Protection for Soldier's Heart. Filderman and Bonnette.—p. 369.
44 Rapidly Fatal Addison's Disease in Course of Tuberculous Pleurisy. J. Tapie.—p. 371.

43. **Protecting Devices for the Soldier.**—Fildermann and Bonnette remark that the weight and clumsiness of a really protecting cuirass forbid its use to date, but that there is every reason for some light device to protect the heart. This is a peculiarly vulnerable region as there is no natural protection here, while the slightest wound of the heart may prove fatal. They suggest, until something better can be devised, to have a thin sheet of metal, about 2 mm. thick, sewed between the coat and its lining over the heart region. It could reach to the collar of the coat and lie just outside of the buttonholes. Suitable dimensions would be 15 cm. in height by 13 at the base, the part near the shoulder slanting from the neck outward, leaving the outer straight edge at the base only 6 cm. A sheet of metal of the kind need not weigh more than 250 gm.

Correspondenz-Blatt für Schweizer Aerzte, Basel

November 10, XLVII, No. 45, pp. 1505-1536

45 *The Developmental Cycle of the Bothriocephalus Latus. C. Janicki and F. Rosen.—p. 1505.
46 Avirulent Diphtheria-Like Bacilli. J. L. Burckhardt.—p. 1517.
47 *Roentgen Treatment of Disease of the Nails. L. Merian.—p. 1521.

45. **Development Cycle of Bothriocephalus.**—The research here reported has supplied the missing link in the development of the *Bothriocephalus latus L.* The larvae are eaten by the *Cyclops strenuus* and *Diaptomus gracilis.* These form the intermediate link, and as they are eaten by fishes, the parasite finds its way to man, dog and cat, and the cycle starts anew. Each of the five phases of the cycle may take up to three or four weeks. The work was done at the laboratories of the Universities of Lausanne and Neuchâtel.

47. **Disease of the Nails.**—Merian gives illustrations before and after roentgen treatment of slow pathologic processes in the matrix of the nails—onychia, usually traceable to some solution of continuity in the skin nearby. The results were excellent, the nail returning to normal without the disfigurement usual after such processes. One to three exposures answered the purpose. A single exposure proved effectual for one tuberculous process of the kind which had persisted for two years rebellious to various measures, including curetting and heliotherapy. The aspect of the thumb now seems quite normal. With psoriasis and eczema, he exposes the skin around to the usual eczema dose, but gives the nail matrix the deep dose, from 3 to 8 H, in one sitting.

Riforma Medica, Naples

October 13, XXXIII, No. 41, pp. 973-992

48 *To Free Convalescents of Typhoid Bacteria. L. Preti.—p. 973.
49 Dissociated Cortical Paralysis After War Wound and Localizations of Motor and Sensory Functioning. E. Salkind.—p. 974.

48. **Treatment of Bacilli Carriers.**—Preti noticed that the serum of patients convalescing from typhoid never contained agglutinins in any proportion when typhoid bacilli could still be found in their stools. This suggested that by artificially increasing the agglutinins it might be possible to free the men from the bacilli. He consequently gave a small injection of antityphoid vaccine. There was always a pronounced general reaction, and the typhoid bacilli disappeared from the stools thereafter. Although his experience is limited, the unfailing success justifies trials of this means of curing carriers of typhoid and possibly of other germs.

Rivista Critica di Clinica Medica, Florence

October 20, XVIII, No. 42, pp. 409-420

50 *Nervous and Functional Disordered Action of the Heart in Soldiers. N. Pende.—p. 409. Commenced in No. 38, p. 365.
51 Big Abdomen in Soldiers. S. Pisani.—p. 412. Continuation.

50. **Disordered Heart Action in Soldiers.**—Pende has found that all the purely nervous and functional heart disturbances which he has encountered in soldiers can be roughly classified in four groups: those with indications of excessive thyroid functioning; those with vagotonia; those whose hearts are not well developed and strong; those with symptoms deceptively simulating myocarditis. When the case can be ranged in one of these classes, the indications for treatment are apparent at once. For the thyroid group, bland local radiotherapy of the thyroid and galvanization of the thyroid and cervical sympathetics might be tried, supplemented by pluriglandular organotherapy. Or pituitary treatment might counteract the thyroid, or minute regulating doses of thyroidin. He warns, however, that even at the best—when myasthenia cordis can be excluded—the heart in these cases may become suddenly strikingly disordered, with crises of depression which might prove dangerous in active military service. There may be some infectious factor along with the excessive thyroid functioning—Simmonds, Faha and others have recently demonstrated degenerative lesions in the myocardium of persons who had had exophthalmic goiter during life.

The men with myasthenia cordis should be given only light duty not calling for muscular effort. The vagotonic type of disordered heart action gives the best prognosis; treatment should consist in moral suasion, diversion, graduated exercises, good food and fresh air and mild hydrotherapy. In his fourth group, the adynamic, pseudomyocarditis cases, hospital treatment and psychotherapy do not have the slightest effect. The men can be given specialist neurologic treatment for a time, but the best plan is to send them home at once on a long furlough.

Hospitalstidende, Copenhagen

October 17, LX, No. 42, pp. 1021-1048

52 *Trichinosis in Denmark. J. Fibiger.—p. 1021.

52. **Trichinosis in Denmark.**—Fibiger reiterates that the meat from even one hog with trichinae is liable to start an extensive epidemic, as occurred at Hedersleben where 337 persons were affected and 101 died. The measures for control of trichinosis in Denmark have shown their efficiency in late years not only in the great reduction of cases in man but also in the reduced infestation of dogs and cats with trichinae, which they acquire from swine and rats. Rats become infested from the hog most frequently of all. In 1904-1905 more than 3 per cent. of the necropsies at Copenhagen's public hospitals showed the presence of trichinae; in 1910 the proportion was only 0.6 per cent. The meat control inspection revealed from six to nine hogs with trichinae in 1911-1913; thirteen in 1914 but only one in 1915. During the two latter years however, 693 sides of salted meat imported from America were found to contain the trichina.

Ugeskrift for Læger, Copenhagen

October 18, LXXIX, No. 42, pp. 1715-1740

53 *Mastoid Operation Fatalities. G. V. T. Borries.—p. 1715.
54 Length of Sanatorium Courses. O. Helms.—p. 1721.

October 25, No. 43, pp. 1741-1776

55 Treatment of Scabies. L. Nielsen.—p. 1741.

53. **Mastoid Operation Fatalities.**—Borries relates that during the last ten years 1,108 mastoid operations have been performed in Mygind's service at Copenhagen, and 10.7 per cent. of the patients died. The ages ranged from 2 months to 76 years. In only fourteen of the total 119 deaths was the operation in itself probably responsible for the fatal outcome. This mortality, corrected, amounts to only 1 per cent. of the total 1,108 operations. In fourteen other cases, serious postoperative complications developed, but the patients recovered. The danger of complications does not seem to be any greater with total than with simple mastoid operations, but if meningitis does occur it is liable to be more serious with the total operation.

JOURNALS ABSTRACTED IN THE CURRENT MEDICAL LITERATURE DEPARTMENT, JULY-DECEMBER, 1917

The following journals have been abstracted in the Current Literature Department of THE JOURNAL during the past six months. Any of the foreign journals, except those starred, will be lent by THE JOURNAL to subscribers in the United States and to Fellows of the American Medical Association for a period not exceeding three days. Only one journal may be borrowed at a time. Requests for periodicals should be addressed to the Library of the American Medical Association and six cents in stamps should be enclosed. This covers the average expense of mailing a journal. Domestic journals can be obtained by sending the approximate amount direct to the respective publishers. Thus most of the journals indexed are accessible to the general practitioner, no matter where he may be located.

Acta Scholae medicinalis universitatis imperialis in Kioto. Irregular. 1.50 yen. Tokyo.

American Journal of Anatomy. Bi-m. $7.50. 36th St. and Woodland Ave., Philadelphia.

American Journal of Diseases of Children. M. $3. American Medical Association, 535 N. Dearborn St., Chicago.

American Journal of Insanity. Q. $5. Johns Hopkins Press, Baltimore.

American Journal of the Medical Sciences. M. $5. Lea & Febiger, 706 Sansom St., Philadelphia.

American Journal of Obstetrics and Diseases of Women and Children. M. $5. William Wood & Co., 51 Fifth Ave., New York.

American Journal of Orthopedic Surgery. M. $4. 126 Massachusetts Ave., Boston.

American Journal of Physiology. M. $5. Johns Hopkins Medical School, Baltimore.

American Journal of Public Health. M. $3. 126 Massachusetts Ave., Boston.

American Journal of Roentgenology. M. $5. 67 E. 59th St., New York.

American Journal of Syphilis. Q. $5. C. V. Mosby Co., St. Louis.

American Review of Tuberculosis. M. $3. 2419 Greenmount Ave., Baltimore.

Anales de la Facultad de medicina, Montevideo. Bi-m. $2. Montevideo.

Annales de gynécologie et d'obstétrique. M. 22 francs. Paris.

Annales de médecine. M. 23 francs. Paris.

Annali d'igiene. M. 20 lire. Rome.

Annals of Medical History. Q. $6. Paul B. Hoeber, 67 E. 59th St., New York.

Annals of Ophthalmology. Q. $4. Mermod-Jaccard Bldg., St. Louis.

Annals of Surgery. M. $5. J. B. Lippincott Co., 227 S. 6th St., Philadelphia.

Annals of Tropical Medicine and Parasitology. Q. $5. Liverpool.

Archives de médecine et de pharmacie militaires. M. 40 francs. Paris.

Archives mensuelles d'obstétrique et de gynécologie. M. 25 francs. Paris.

Archives of Diagnosis. Q. $2. Rebman Co., 141 W. 36th St., New York.

Archives of Internal Medicine. M. $4. American Medical Association, 535 N. Dearborn St., Chicago.

*Archives de médecine des enfants. M. 18 francs. Paris.

Archives des maladies de l'appareil digestif et de la nutrition. M. 14 francs. Paris.

Archives des maladies du cœur, des vaisseaux et du sang. M. 17 francs. Paris.

Archives médicales Belges. M. 18 francs. Paris.

Archives of Ophthalmology. Bi-m. $5. G. P. Putnam's Sons, 2 W. 45th St., New York.

Archives of Pediatrics. M. $3. E. B. Treat & Co., 241 W. 23d St., New York.

Archives of Radiology and Electrotherapy. M. $5. London.

Boston Medical and Surgical Journal. W. $5. 126 Massachusetts Ave., Boston.

Brazil-medico. W. 20 milreis. Rio de Janeiro.

Bristol Medical and Chirurgical Journal. M. 6s. Bristol.

British Journal of Children's Diseases. Q. $5. London.

British Journal of Surgery. Q. $6.50. William Wood & Company, 51 Fifth Ave., New York.

British Journal of Tuberculosis. Q. $1.25. G. E. Stechert & Co., 151 W. 25th St., New York.

British Medical Journal. W. $10. London.

Bulletin de l'Académie de médecine. W. 20 francs. Paris.

Bulletin of the Johns Hopkins Hospital. M. $3. Baltimore.

Bulletin of the Lying-in Hospital of the City of New York. Irregular. $1. 23 E. 93d St., New York.

Bulletin of the Medical and Chirurgical Faculty of Maryland. M. $0.25. 1211 Cathedral St., Baltimore.

Bulletins et mémoires de la Société médicale des Hôpitaux de Paris. W. 28 francs. Paris.

California State Journal of Medicine. M. $1. Butler Bldg., San Francisco.

Canadian Medical Association Journal. M. $5. 386 Victoria St., Toronto.

Chirurgie degli organi di movimento. Bi-m. 35 lire. Bologna.

Cleveland Medical Journal. M. $2. 2318 Prospect Ave., Cleveland.

Colorado Medicine. M. $2. Metropolitan Bldg., Denver.

Correspondenz-Blatt für schweizer Aerzte. W. *22 francs.* Basel.

Cronica medica. Semi-m. 6 soles. Lima, Peru.

Delaware State Medical Journal. M. $1. *Wilmington.*

Dublin Journal of Medical Science. M. $5.

Edinburgh Medical Journal. M. $6.

Escuela Médico-Militar. M. $4. Mexico City.

Gann. Irregular. Tokyo.

Gazzetta degli ospedali e delle cliniche. Semi-w. 25 francs. Milan.

Glasgow Medical Journal. M. $5.

Grèce médicale. Semi-m. 12 francs. Athens.

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Journal of Medical Society of New Jersey. M. $2. 12 Cone St., *Orange, N. J.*

Journal of Michigan State Medical Society. M. $3.50. Power's Theatre Bldg., Grand Rapids, Mich.

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Journal of Parasitology. Q. $2. Urbana, Ill.

Journal of Pathology and Bacteriology. Q. $5.50. Cambridge, England.

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Northwest Medicine. M. $2. Cobb Bldg., Seattle, Wash.
*Nourrisson. Bi-m. 14 francs. Paris.
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Ophthalmology. Q. $5. 708 Cobb Bldg., Seattle, Wash.
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Russkiy Vrach. W. 13 rubles. Petrograd.
Sei-I-Kwai. M. $2. Tokio.
*Semana médica. W. $5. Buenos Aires.
Siglo medico. W. 20 pesetas. Madrid.
Southern Medical Journal. M. $3. 807 Empire Bldg., Birmingham, Ala.
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Wisconsin Medical Journal. M. $2. Goldsmith Bldg., Milwaukee.

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SUBJECT INDEX

This is an index to all the reading matter in The Journal. In the Current Medical Literature Department only the articles which have been abstracted are indexed.

The letters used to explain in which department the matter indexed appears are as follows: "E," Editorial; "C," Correspondence; "T," Therapeutics; "Ml," Medicolegal; "P," Propaganda for Reform; "ME," Medical Economics; "ab," abstract; the star (*) indicates an "Original Article" in The Journal.

This is a subject index and one should, therefore, look for the subject word, with the following exceptions: "Book Notices," "Deaths" and "Society Proceedings" are indexed under these titles at the end of the letters "B," "D" and "S." Matter pertaining to the Association is indexed under "American Medical Association."

The name of the author follows the subject entry in brackets. The figures in parentheses refer to the paragraph in the Current Medical Literature Department, the number following to the page in The Journal.

For author index see page 2245.

A

ABDERHALDEN REACTION: See under names of various diseases
ABDOMEN, drainage of, posture in cases of, [Hill] (25) 1736
  perforation of abdominal viscera, [Tennant] 1561—ab
  pressure, intravisceral and intra-abdominal, [Coffey] *683
  protection of chest and, of combatants, 1457, [Delorme] (37) 1568
  Ptosis of: See Splanchnoptosis
  rectangular flap incision for operations within upper abdomen, [Meyer] *1677
  rigidity of wall of, with war wounds, [Willems] (42) 2073
  sarcoma in, in young woman, polyserositis with, [Kramer] (130) 499
  wounds in war, [Eastman] 1560—ab, (23) 2069
  wounds, laparotomy for, unusual complications of, [Johnston] (7) 1642
  wounds, penetrating, treatment in hospitals at front, 660
  wounds, subnormal arterial pressure with, [Chiasserini] (65) 1916
  wounds, treatment at advanced posts, [Schwartz] (57) 156
ABDOMINOCARDIAC and oculocardiac reflexes, [Pron] (53) 1036
ABORTIFACIENT, nitrobenzol not an, [Spinner] (54) 2155
ABORTION, active versus conservative treatment of, [Engler] (44) 947
  causes of, statistical study of, [Royston] (3) 1647
  criminal, repression of, [Berthélemy] (35) 1568
  notification of miscarriages and, [Bar] (46) 1742
  presumption from commission of numerous, 938—Ml
ABSCESSES: See also Phlegmon; and under names of organs and regions
ABSCESSES, chronic, [Filardi] (82) 1387
  in myositis purulenta tropica, etiologic agent and localizing factor of, [Walker] (35) 1030
  tuberculous, present day treatment of, [Delaney] (161) 492
ABSORBABLE metal clips as substitutes for ligatures and deep sutures in wound closure, [Andrews] *278, [Kane] 663—C
ACCIDENTS, industrial, laws on war wounds and, [Imbert] (66) 2075
  prevention and welfare work in large industrial plant, 725—ab
  street, increase in, 375—ab
ACETANILID and sodium bicarbonate, 1375
ACETONEMIA, [Guidi] (75) 1917
ACHILLES TENDON, percussion of, flexion of big toe on, [Villaret & Faure-Beaulieu] (66) 1656
  sensory, sign with sciatic disease, [d'Allonnes] (81) 496
ACHYLIA gastrica, [Mortimer] 1467—ab
  gastrica, diarrheas accompanying, [Rehfuss] *1328
ACID, acetylsalicylic, 199
  acetylsalicylic acid (Aspirin), Monsanto, 1695
  acetylsalicylic acid—Milliken, 1695
  acetylsalicylic, chronic poisoning from [Stiell] (35) 1383
  acetylsalicylic, with quinin, incompatibility of, 1375
ACID, Carbolic: See Phenol
  citric and malic, in various fruits, 1132—E
  citric, in urine, [Amberg & McClure] (6) 2146, 2120—E
  glucuronic, action of inosite and similar bodies on elimination of, [Sasaki] (86) 77
  hydrochloric, effect of, on mineral excretion of dogs, [Stehle] (69) 850
  Intoxication: See Acidosis
  lactic, bacilli in leukorrhea, [Block & Llewellyn] *2025
  lactic, in stomach, errors in deductions from presence of, [Rodella] (75) 2075
  lactic, in urine, Schneyer method for determination of, [Mayer] (45) 1649
  malic, behavior of, in body, 44—E
  nucleic, chemical structure of, 1431—E
  output of bases after intake of acid, 1172—E
  oxalic, in foods, 1699—E
  picric, in urine, test for, 39—ab
  picric, urines of workers in, [West] (22) 755
  Salicylic: See also Salicylates
  uric, alleged perils of, [Berkart] (2) 1033
  uric, and maternal and fetal blood, [Slemons & Bogert] (41) 1649
  uric, endogenous, physiology of, [Høst] (86) 1573
  uric, in blood of new-born, [Sedgwick & Kingsbury] 147—ab, (3) 588
  uric, in gout, [McClure and Pratt] (39) 1737
  uric, infarcts in new-born, 1699—E
ACIDOSIS and acid excretion in pneumonia, [Palmer] (40) 1379
  and anesthesia, relation between, [Caldwell & Cleveland] (113) 241
  bicarbonate concentration of blood plasma, significance and determination as measure of, [Van Slyke & Cullen] (50) 149
  blood and urine ammonia in, [McNeil & Levy] (47) 1910
  blood lipoids and nephritis, 1976—E
  in diabetes and nephritis, [Christie] (50) 407
  newer conception of, 646—E
  postoperative, [Jeans & Johnson] (7) 311
  studies of, [Van Slyke & Cullen] (50, 51] 149
ACNE as cause for rejection, 128
  vulgaris, roentgenotherapy of, [Hazen] *977
ACRIFLAVINE, antiseptic properties of proflavine, brilliant green and, [Browning & others] (20) 673
  relative germicidal efficiency of antiseptics of chlorin group and, [Dakin & Dunham] (13) 2151
ACROMEGALY, roentgenotherapy of, [Nordentoft] (108) 1122
ADAMANTINOMA showing epithelial pearls, case of, [Graves] (8) 1029
ADAMS-STOKES' DISEASE: See Heart-Block
ADDISON'S DISEASE, actions of epinephrin on, [Burridge] (22) 72
  epinephrin in, [Nolf & Fredericq] (38) 1475
ADENECTOMY, complications and end-results of tonsillectomy and, [illegible] source of [illegible] & Cheville] (43) 2154
ADENOIDS, pituitary deficiency with, [Citelli & Caliceti] (60) 246
ADENOMYOMA of rectovaginal septum, [Cullen] (46) 1999
ADENOSARCOMA in right kidney in girl of 6, [Kirmisson & Trétiakoff] (28) 72
ADRENALIN: See Epinephrin
ADRENALS: See Suprarenals
ADVERTISEERS, weird logic of certain, 1010—E
ADVERTISING, medical, in New York Medical Journal, 1010—E
  medical, Times-Picayune accepts only that investigated and passed on by state board of health, 2133—P
  remedies for venereal diseases, law prohibiting, 1021—P
  under name other than own to practice medicine, 845—Ml
AEROPLANE, industrial poisoning in manufacture of, [Hamilton] *2037, 2041—E
AGAR-AGAR, liquid, in constipation, [Brown & Sweek] *467
AGARICIN, [McCartney] (87) 315
AIR, alveolar, changes in composition of, during inspiration and expiration, [Pearce] (9) 1735
  alveolar, in asthma, 827—E
  force, specialized medical service for, 2134
  raid and hospitals, 222
  raid, casualties of, 301
  raids on London, 1551
  tidal, effect of accumulation of carbon dioxid on H-ion concentration of arterial blood and on tidal air in decerebrate cat, [Scott] (10) 1294
ALABAMA examination, candidates' deficiences at, 665
  medical news, 130, 835
  reciprocal relations of, 685
  state board July examination, 1996
ALBUMIN, dissolved, in stomach content, differential valuq of, [Udaondo] (70) 949
ALBUMINURIA and hematuria following administration of hexamethylenamin, [Wiseman] (19) 754
  [illegible] changes following [illegible] of full [illegible] salicylate, [Hanzlik & others] (64) 69
  long-standing, causation and curability of, [Riesman] *2009
  postoperative, [Satre] (44) 244
  trench, [Teissier] (12) 594
ALBUMOSES in tissues and blood with reference to occurrence in gastro-intestinal mucosa, [Abel & others] (6) 1735
ALCOHOL, action of House of Delegates of American Medical Association on, [Hare & Green] 226—C
  as cause of insanity, decline of, [Pollock] (65) 756
  effect of, on reproductive tissues, [Arlitt & Wells] (54) 2149
  from standpoint of pharmacology and therapeutics, [Fantus] *10
  in pneumonia in early infancy and childhood, [Koplik] *1661
  medical science and, [Kane & Hawkes] 1289—C
  nerve blocking in causalgia, [Pitres & Marchand] (60) 1477
  sale of beverages containing, 302
  soap, [Nogier] (39) 946
  war revenue laws and dispensing of, by physicians, 2121
ALCOHOLISM, campaign against, [Coni] (127) 678
  repression of public drunkenness, 1722
ALCRESTA Ipecac, 1373—P
ALIMENTARY TRACT: See Gastro-intestinal Tract
ALIMENTATION, Advisory Committee on, 920
ALLERGY: See Anaphylaxis; Immunity
ALOPECIA areata and defectively developed teeth, connection between, [Sabouraud] (46) 1303
ALVARENGA prize, 1369
ALYPIN, action of, on bladder, [Waddell] (73) 1738
AMBARD'S urea constant in surgery, [Legueu & Chabanier] (51) 2074
AMBLYOPIA, optochin, [Schiøtz] (140) 500
AMBOCEPTOR, antisheep hemolytic, preservation of, in glycerol, [Clock & Beard] (51) 1380
AMBULANCE driving not "an old man's job," [Williams] 62—C
  Red Cross, enlistment in service, not to exempt from draft, 478
AMEBA, detection of, technic for, [Ravaut & Krolunitsky] (32) 595
AMEBIASIS: See Dysentery, Amebic
AMERICA, medical military utopia, 1010—E
AMERICAN Academy of Ophthalmology and Oto-Laryngology, meeting of, 1369, 1720
  ambulance corps at Neuilly, 578
  Association for Study and Prevention of Infant Mortality, meeting of, 1285, 1455
  Association of Anesthetists offers services in instruction, 133
  Association of Electrotherapeutics and Radiology, new officers of, 1549
  Association of Military Surgeons, meeting at Fort Benjamin Harrison, 1272, 1355
  Association of Obstetricians and Gynecologists, meeting of, 395
  Association of Railway Surgeons, officers of, 1455
  Automobile Club, donations from, 1633
AMERICAN MEDICAL ASSOCIATION, Chicago session, committee on arrangements, 1723
  Council on Medical Education, standards of, 546
  House of Delegates on alcohol question, [Hare & Green] 226-C
  pamphlets on medical military information for physicians, 830
  practical economy, 2116—E
  Section on Gastro-Enterology and Proctology, retrospect and prospect, [Murray],*1481
AMERICAN Museum of Safety, 4th annual congress, 925
  Orthopedic Association elects officers, 395
  Public Health Association, change of meeting place, 660
  Public Health Association, new officers of, 1550
  Public Health Association, special war meeting, 1090
  Red Cross: See Red Cross, American
  Review of Reviews and New York Medical Journal advertising, 1010—E
  Social Hygiene Association, meeting of, 1285
  spas and war, 1881
  students in Paris, home for, 1551
AMMONIA in blood and urine in acidosis, [McNeil & Levy] (47) 1910

AMNESIA, malarial, [de Brun] (45) 2154
  traumatic, [Oppenheim] (51) 320, (82) 497
AMNIOTIC fluid, tint of, as sign of fetal monstrosity, (69) 322
AMPUTATION, first devices to aid amputated, [Baudet] (32) 2152
  method of flapless amputation with subcutaneous division of bone at higher level, [Handley] (3) 1114
  reamputation, [Chapple] (2) 1114
  technic for, [Fieux] (34) 73, [Lerda] (79) 1387, (69) 2005
AMYL nitrite and atropin test in bradycardia, [Josué & Belloir] (49) 1036
AMYLASE, circulating, significance of, 385—E
ANAEROBES found in wounds, and mode of action in tissues, [Henry] (10) 242
ANAEROBIC methods, new, [Smilie] (60) 239
ANAPHYLAXIS: See also Immunity
ANAPHYLAXIS and primrose dermatitis, [Simpson] *95
  bacterial infection and, studies on, [Zinsser & Parker] (59) 1111
  fate of foreign proteins in acute anaphylactic reaction, [Manwaring & others] (78) 1297
  liver in shock and peptone poisoning, [Weil] (41) 1910
  lung phenomena in, 1352—E
  reactions to normal serums, [Leary & others] (14) 1826
  serum, serious forms of, in man, [Vermoni] (66) 948
  shock, rôle of hepatic tissues in acute anaphylactic shock, [Manwaring & Crowe] *722, (79) 1297
ANASARCIN and Anedemin, [Lapius] 1992—P
ANEDEMIN and Anasarcin, [Lapius] 1992—P
ANEMIA, blood lipoids in, [Bloor & MacPherson] (54) 314, 1176-E
  blood transfusion in, [Graves] (106) 943
  erythrocytes in, with elongated and sickle-shaped red corpuscles, [Emmel] (43) 1737
  from hemorrhage, lipemia in rabbits during, [Ellermann & Meulengracht] (83) 1306
  influence of splenectomy on metabolism in, [Denis] (15) 406
  oral sepsis and, [Graves] 2267—ab
  pernicious, etiology of, 43—E
  pernicious, in infant, [Bradley] (9) 549
  pernicious, transfusion and splenectomy in, [Minot & Lee] (46) 2148
  pernicious, treatment of, [Barker & Sprunt] *1919
  school, [Bracci] (58) 1571
  splenectomy in, [Haggard] *79
  splenic, critique of Banti's disease, [Moschcowitz] *1045
  splenic, splenectomy and omentofixation in, [Losio] (66) 2156
  splenic, surgery in, [Lockwood] (11) 593
ANESTHESIA and acidosis, relation between, [Caldwell & Cleveland] (113) 241
  apparatus, valve to regulate delivery of air and ether vapor in any proportion, [Gates] (58) 239
  blood pressure during, comparative study, [Miller] 403—ab
  effect of operation and, on kidney function, [Colp] (9) 67
  effects on blood volume and relation to production of shock, [Epstein] 403—ab
  ether, 302
  ether, and etherization in relation to infection and immunity, [Haines] 1734—ab
  ether, by rectal injection, [Montoya] (111) 499
  ether, effect on catalase in blood, [Burge] (3) 1735
  ether, effects of, and of visceral trauma as shown by vasomotor and blood pressure changes, [Muns] 404—ab
  etherization, perfected open, utility of, [Herb] 1734—ab
  ether-oil general, by rectum, [Protopopoff & others] (75) 857
  ether-oxygen, [Buettner] 1734-ab
  general, shock during, [Mann] *371
  improvised mask for, [Savariaud] (45) 2004
ANESTHESIA in curriculum and clinic, [Gatch] *367
  in orthopedic surgery, [Elmer] 404—ab
  in surgery of epileptics and control of status epilepticus, [Collier] 1735—ab
  in war surgery, 661, [Baruch] (35) 2153
  liquid air and electrolytic oxygen for [McLean] 1647—ab
  local, [Watson] 1734—ab
  local, of tonsils, simplified technic for, [Patton] *38
  lung complications following operations under, [McKeeson] 1647—ab
  nitrous oxid-oxygen, [Moots] 1646—ab
  nitrous oxid-oxygen analgesia and, in obstetrics, [Turner & Jones] 1734—ab
  nitrous oxid-oxygen, blood changes under [Casto] 1646—ab
  nitrous oxid-oxygen, comparative dangers and availability of, [McCurdy] 1647—ab
  nitrous oxid-oxygen, low pressure, nasal administration of, [Ecker] 1734—ab
  nitrous oxid-oxygen, with rebreathing in military surgery, [Boyle] (11) 2003
  tyramin as adjunct to morphin in labor, [Barbour] *882
  vapor, with reference to ether-oxygen, [Buettner] 1734—ab
ANESTHETICS, actions of, analyzed by observations of altered cardiac relations to calcium, [Burridge] (20) 72
  responsibility in choice of, 1104
  toxic factors of common anesthetic substances, [Graham] *1666
ANESTHETISTS, trained nurses as, and practice of medicine, 1731-Ml
ANEURYSM of basal arteries of brain, indirect trauma as factor in, [Hedinger] (74) 2075
  of left upper division of pulmonary artery; spirochete pallida in wall of artery and aneurysmal sac, [Warthin] (9) 1908
  traumatic diffuse, in surgical neck of humerus, [Knaggs] (2) 2151
ANGINA, Vincent's: See Vincent's Angina
ANILIN workers, tumors of bladder in, 204—E
ANIMALS, do they feel pain? [Van Rijnberk] (108) 1745
ANKLE joint, ankylosis of, [Ducroquet] (41) 2003, (36) 2211
  wounds of foot and, in war, [Quénu] (55) 321, (61) 1037
ANKYLOSIS, arthroplasty in, sphero of, [Thomson] (10) 1301
  of ankle joint, [Ducroquet] (41) 2003
  of elbow joint, arthroplasty for, [McKenna] *891
  surgical treatment of, [Olivieri] (62) 1571, (75) 1835
ANKYLOSTOMIASIS: See Uncinariasis
ANNALS of Medical History, 133
ANOMALIES of body, current, [Brachet] (30) 73
ANTHRAX, 2061—ab
  bacillus infection, hemorrhagic meningitis from, [de Jong] (79) 1572
  from shaving brushes, 396
  normal beef serum in, 1085-E, 1375, [Penna & others] (84) 1388, (60) 1571, (87) 2076, [Solari] (98) 1658, [Ligniéres] (95) 2076
  serum therapy, comparative inefficiency of, [Ligniéres] (72) 949
  suprarenal hemorrhage in, [Roger] (40) 759
ANTIARIN, electrocardiograms of frog heart under influence of, [Rümke] (114) 416
ANTIBLASTIC immunity, studies on, [Blake] (43) 1379
ANTIBODY and antigen in living animal, [Weil] (61) 150
ANTIFERMENTS in therapeutics, present status of, [Fernandez] (106) 159
ANTIGEN and antibody in living animal, [Weil] (61) 150
ANTIGONOCOCCUS vaccine in vulvovaginitis in children, [Condat] (26) 72
ANTIMENINGOCOCCI serum, standardization and administration of, [Amoss] *1137
ANTIPERISTALSIS, true, in small intestines, 1463
ANTIPNEUMOCOCCUS, Immune bodies, neutralization of, by infected exudates and serums, [Cole] (38) 1379
  serum, production of, [Cole & Moore] (42) 1379
ANTIPOLIOMYELITIS serum, production of, in horses, by inoculations of pleomorphic streptococcus from poliomyelitis, [Rosenow] *261
ANTIPYRETICS, effect of, on fever center, [Lüthy] (53) 2155
ANTIRABIC vaccine, 39
ANTISEPSIS, evaluation of asepsis and, [Fowler] (29) 1998
ANTISEPTICS: See also Disinfectants
ANTISEPTICS, irruption of, 2141—ME
  methods of applying, to deeper parts of wounds, [Kellock] (18) 1202
  of chlorin group, relative germicidal efficiency of, [Dakin & Dunham] (13) 2151
  specific for certain bacteria, [Taylor] (25) 2152
ANTITETANUS Serum: See Tetanus
ANTITOXIN, Diphtheria: See Diphtheria Antitoxin
ANTITOXIN for gas gangrene, 41—E
  free distribution of, 745
  Tetanus: See Tetaus Antitoxin
ANURIA, mercurial, [Milian & de Saint-Avid] (56) 1385
ANURIC Tablets, 915—E, 930—P
ANUS, fistula of rectum and, [Pennington] *1501
  speculum, operative, [Smiley] *121
ANXIOUS DEAD, THE, [McCrae] 1437
AORTA, syphilis of heart and, [Fontaine] 2144—ab
AORTITIS, nonsyphilitic, [Stoner] 1908—ab
  syphilitic, report of cases, [Elliott] (10) 312
APOPHYSITIS of os calcis, [Kurtz] (20) 1109
APPARATUS: See also Instrument
APPARATUS for intraventricular drainage, [Lott] *997
  for oral rhythmic oxygen insufflation, [Meltzer] *1150
  for spraying paraffin, [Caldwell] *383, 1194
  for study of dissociation of oxyhemoglobin, [MacCallum] *523
  probe with resonator attachment, [Stefani] (78) 675
  rack for handling small deep skin grafts, [Davis] *997
  safety cap for graduated pipets, [Gates] *467
  traction, for reduction of fracture, [Soutter] *2035
  valve to regulate delivery of air and ether vapor in any proportion, [Gates] (58) 239
APPEAL to courts, when right of, obtains, 1997—Ml
APPENDICECTOMY on new-born infant, [Vargas] (32) 1204
APPENDICITIS, acute, analysis of 500 cases, [Beekman & others] (3) 1469
  acute, leukocyte count in, [Hewitt] (9) 847
  and gynecologist, [Morris] *2036
  and oxyuriasis, [Matthiasson] (80) 1573
  cause of, and means to ward it off, [Lorand] (96) 414
  chronic, and sclerocystic ovaritis, [Gomez] (89) 1120
  in armies in field, 1897
  in children, 33 cases of, [Wood] (30) 1034
  in infants, [Abt] (8) 1562
  in 9 month old infant, [Abt] 235—ab
APPENDIX, anatomic point which facilitates location and delivery of, [Guthrie] (76) 70
  leiomyoma of, [Redway] *2175
  worm infection of, pathology of, [Matsuoka] (23) 944
APPETITE and hunger in fevers, 1614—E
ARGENTINE Medical Association, meeting of, 1550
  medical bibliography, 1550
  medical library, 926
  nationalization of, Asistencia Publica in, [Facio] (63) 1571
ARGYRIA, [Steiger] (71) 1656
  localis due to organic silver preparations, [Olson] *87
  malpractice for causing, 815—Ml
ARIZONA medical news, 1451
  state board July examination, 1557
ARKANSAS medical news, 574, 1451
  state board May examination, 1729
ARM: See also Extremities
ARM, pain, subdeltoid (subacromial) bursitis, clinical types, pathology and treatment, [Brickner] *1237
  transient paralysis of, with pain in young children, [Conterno] (53) 1570
  wounds in war, pain and other disturbances from, [Corridi] (73) 1038
ARMY: See also Soldiers
ARMY, British committee of inquiry, 1009—E
  characters of medicaments for, indication of progress, 125—E
  clothing production, sanitary supervision of, 1091
  English, civil physicians in, 1099
  giving medical officer rank to which he is entitled, 292
  Medical Corps: See Medical Reserve Corps
  Medical Department, cabinet official in charge of [illegible]
  Medical [illegible] pictures a[illegible] for, 2121
  Medical Department personnel, total, 736
  Medical Department, program of preparedness in, 915—E
  Medical Depot opened, 221
  medical examination of National Army, 1268—E
  medical officers, adequate rank and authority for, 284—E
  medical service, 134
  medical service, English, premier's tribute to, 2058
  medical service in, in Macedonia, 1370
  physical examination of men drafted under Selective Service Act, methods and instructions to examiners, 215
  physical requirements for National Army, modification of, 652
  professional training for young men with colors, 2135
  prostitution and, [Exner] 16—ab
  ration in Italy, [Baglioni] (48) 1569
  ration, reform in, [Rho] (47) 1569
  recruits, underappreciated menaces of organization of, 913—E
  rigidity of examination in various branches of service, 127
  sanitary corps for, 127
  surgeon, work of, [Gorgas] 1538—ab
  volunteer service in some branches for men registered under selective service, 2121
ARNETH'S leukocyte count in pulmonary tuberculosis, value of, [Taylor & Wilson] (16) 673
ARSENIC and emetin in amebic dysentery, [Aimé] (34) 1116
  in cremated bodies, 124—ab
  in urine, 935
  insecticides, dangers in manufacture of, 1610—E
  poisoning, eye manifestations in, 935
ARSENOBENZOL (Dermatological Research Laboratories), 1695, 2115
ARSENPHENOL-Amine Hydrochloride, 1695
  —Amine—S, 383
ARSPHENAMINE, 2115
ARTERIAL sounds, study of, [Roberts] *873
ARTERIOSCLEROSIS, etiology of, [Warfield] (66) 2149
ARTERY, brachial, pulse flow in, [Hewlett] (10) 406
  dry wounds of, 1019
  obstruction of, oscillometer in estimation of circulation after, [Balard] (47) 760
  popliteal, improved technic for ligation of, [Marinacci] (113) 677
  pulmonary, syphilis of, [Warthin] (9) 1908
  wounds of, in war, without external hemorrhage, [Alamartine] (44) 1654
ARTHRITIS: See also Gout; Joint Diseases; Rheumatism
ARTHRITIS, acute, of knee following injury, new pathogenic sporotrichum found in, [Wolbach & others] (47) 490
  and foreign protein, [Thomas] *770
  chronic, association of arterial hypertension with, [Swett] (13) 1109
  etiologic factors in gross lesions of large joints, [Clark] *2099

ARTHRITIS, gonococcal, antibodies in, after injection of specific and nonspecific protein, [Culver] (46) 1910
  oral sepsis and, [Gibbes] 2207—ab
  purulent, of knee, treatment of, [Van Vliet] (100) 2158
  rheumatoid, blood culture in, [Moon & Edwards] (62) 591
  rheumatoid, metabolism and successful treatment of, [Pemberton] (133) 1299
  syphilitic gastritis and, and febrile splenomegaly, [Verdozzi] (74) 1387
  traumatic, factitious, of knee, [Mori] (76) 247
ARTHROPLASTY in ankylosis, sphere of, [Thomson] (10) 1301
ASCITES from liver-heart disease in child under 3, [Martelli] (59) 761
ASCOLI succeeds Baccelli at Rome, 133, 300
ASEPSIS, evaluation of antisepsis and, [Fowler] (29) 1998
ASPHYXIA, behavior of thyroid in, [Pellagrin] (97) 498
  Gas: see Gas Asphyxia
  influence of, on rate of liberation of epinephrin from suprarenals, [Stewart & Rogoff] (85) 315
  traumatic, [Sherrill] (114) 408
ASPIRIN: See Acid, Acetyl-Salicylic
ASSOCIATION of American Medical Colleges, requirements for admission, 552—E
  of Military Dental Surgeons, 925
  of Military Surgeons, meeting of, 578, 1013
ASTHENOPIA, chronic headache from, [van der Brugh] (93) 1208
ASTHMA, alveolar air in, 827—E
  bronchial, cause and treatment of, [Walker] *363
  bronchial, nonpassive expiration theory of, [Brown] (108) 671
  bronchial, reactions incidental to treatment of 2 cases, [Rackemann] *889
  bronchial, subcutaneous injections of proteins to which patients are sensitive in, [Walker] (51) 490
  bronchial, treatment with bacterial vaccines of asthmatics not sensitive to proteins, [Walker] (106) 1199
  bronchial, vaccination in, [Sicard] (8) 67
  bronchoscopy in, [Symes] (18) 493
  experimental, in guinea-pig, [Sewall] (74) 1472
  traumatic, [Losper & Codet] (63) 1478
ASYSTOLY, limits of, [Perrin] (67) 1656
ATAXIA, inherited, [Massalongo] (93) 497
  Locomotor: See Tabes Dorsalis
ATHLETE, heart of, [Heitz] (24) 1831
ATHYREOSIS, fetal 43—E
ATOPHAN, 1971
ATROPIN and amyl nitrite test in *bradycardia*, [Josue & Belloir] (49) 1036
AURICULAR Fibrillation: See Heart
AUSCULTATION through mouth, [Notari] (51) 1118
AUSTRALIA, death rate and invalidity in, 2085—ab
AUSTRIAN physicians decide for conscription, 1552
AUTOMOBILE accidents in New York, 2010—ab
  as instrument of death, 775—ab
AUTOPSY: See Necropsy
AUTOSEROTHERAPY: See Serotherapy
AVIATION and ear, [Jones] *1607
  equilibrium tests for recruits, [Small] *1078
  physical effects of, [Schurmeier] 584
  sickness caused by, [Ferry] (35) 854
AVIATORS, medical, honors for, 838
AYER, J. C., Company and open formula, 1554—P

B

BABY clinic, model, 837
  week, 396
BACILLUS abortus bovinus in certified milk, presence of [Fleischner & Meyer] (1) 1028
BACILLUS abortus, lesions attributed to tubercle bacillus possibly caused by, 1879—E
  acid-fast organisms in distilled water, problem of, [Keilty] (115) 1199
  aerogenes capsulatus, antitoxin for, prophylactic and therapeutic properties of, [Bull] (45) 1379
  aerogenes capsulatus, hemolytic substances in heated milk and milk cultures of, [Ford & Lawrence] (18) 670
  aerogenes capsulatus, toxin and antitoxin of, and inoculation against, [Bull & Pritchett] (66) 239
  bronchisepticus, lesions produced by injection into renal artery, [Winternitz & Quinby] (77) 151
  Carriers: See under names of diseases
  coli, and paratyphoid B bacillus, comparative resistance of, in drinking water, [Dauméxon] (23) 1301
  coli, isolated from pyelocystitis cases, fecal lesions produced in rabbits by, [Helmholz & Beeler] 147-ab, (1) 311
  coli-hemolyticus, cystitis caused by, [Lyons] *1342
  diphtheriae, morphology of strain of, [Heinemann] (41) 670
  mucosus capsulatus, production of acute and chronic kidney lesions with, [Major] (111) 1199
  Tuberculosis: See Tuberculosis
  typhi-exanthematici, development of antibodies for, in typhus contacts, [Baehr] (59) 591
  Typhoid: See Typhoid Bacillus
BACTEREMIA, chronic, transfusion of immunized blood in, [Wekesser] *2182
  in lobar pneumonia, [Sutton & Sevier] (21) 1648
BACTERIA and vitamins, 1531—E
  nucleoproteids, [Ferrannini] (49) 596
  obsidional, pathologic manifestations of, [Sacquépée] (37) 1653
  persistence of, within sequestrums, [Taylor & Davis] (20) 1998
  staining, acid polychrome-methylene blue solution for routine and special staining, [Goodpasture] *998
BACTERIOTHERAPY: See Vaccine Therapy
BACKWARDNESS: See Feeblemindedness
BALANITIS, erosive and gangrenous, [Owen & Martin] (72) 1472
  gangrenosa, [Pusey & others] *1080
BALANTIDIUM coli in Argentina, [Parodi & others] (82) 1479
BALDWIN CAYUGA Mineral Water misbranded, 1901—P
BANANA, 1972—E
  as food for children, [Pease & Rose] (5) 1825
BANTI'S DISEASE: See Anemia, Splenic
BÁRÁNY'S sign in epileptics and schoolchildren, [Tracy] (87) 70
  tests in diagnosis of vertigo from whatever cause, [Jones] *812
BARCOO ROT (veld sore) pathology and treatment of, [Martin] (16) 1301
BASEDOW'S disease: See Goiter, [illegible]
  [illegible] therapy
  [illegible] of plague
  [illegible] Menon] (19) 2072
BEEF serum, toxicity of normal, [Sordelli & Fischer] (83) 323
BEER as source of protein, 1265—E
BELGIAN and French physicians, aid for, [Keen] 228—C, 665—C, 829—E, 1268—E, [Keen] 1290—C, 1728—C, [Jacobs] 2063—C
BELL-ANS (Pa-pay-ans Bell), 1815—P
BENCE-JONES proteinuria, 824—E
BERETTA prize for Milan physicians, 1720
BERIBERI, blood in, [Yoshikawa & others] (17) 406
  differential leukocyte count in, [Chun] (19) 2003
BETANAPHTHOL Benzoate, 821
  Benzoate-Calco, 821
BIBLE, surgical and medical incidents in, 1291
BIER'S method of passive hyperemia in trench feet and allied conditions, [Turner] (16) 1913
BILE and feces of cholera cases and carriers, bacteriologic investigation of, [Crowell & Johnston] (95) 1565
  derivatives, influence of, on Bloor's cholesterol determination, [Luden] (64) 2149
  duct, common, cyst of, [Waller] (80) 598
  ducts, congenital obliteration of, [Comby] (13) 1115
  influence of, on phenol production, [Dubin] (63) 311
  is it a cholagogue? 386—E
  retention of, [Segura] (80) 1207
  tract, recurrence after operations on, [Eisendrath] *1752
BILHARZIOSIS, [Diamantis & others] (44) 1381
BILLINGS, Dr., in Russia, 918
BIOCHEMICAL investigations on blood and urine, bearing on clinical and experimental medicine, [Folin] *1209
BIOLOGY, medical, society for research on, 1188
BIRTH RATE, declining, [Maurel] (38) 1568
  rate, low, in Ireland, 1372
  returns and war, [Chalmers] 610—ab
BISMUTH and nitrite poisoning from use of bismuth subnitrate, 3 cases, [Phillips] (11) 239
  iodoform paste in outpatient work, [O'Conor & Kreutzmann] *2010
BITTER tonics, [Carlson] 33—ab
BLADDER, action of alypin, eucain, holocain, novocain and stovain on, [Waddell] (73) 1738
  calculi, clinical study of, [Bugbee] *1492
  calculi incidence of phosphatic urinary calculi in rats fed on experimental rations, [Osborne & others] *32
  calculus, large, [Browne] *1686
  cancer, [Gardner] (135) 316
  cancer of prostate and, radium in, [Barringer] (18) 1378
  cystoscopic examination of in psychoses, [Barnes & Caulk] (76) 942
  disturbances due to nerve lesions, [Smith] *1323
  diverticulum, report of 2 cases, and operative technic, [Lewis & Moore] *1334
  drainage tube in first stage of suprapubic prostatectomy, [Ballenger & Elder] *2104
  exstrophy of, treatment of, [Mayo] *2079
  exstrophy of, with report of transplantation of entire bladder and ureteric openings into sigmoid, [Haggard] (84) 1912
  fistulas of vagina and, inaccessible, operative treatment of, [Ward] (104) 593
  noncatheterization of urinary bladder in cases of gunshot wound of spinal column, [Besley] *638
  purpura affecting, [Perrier] (41) 1117
  syphilis of, [Fowler] *1399
  tumors in anilin workers, 204—E
  tumors, nonoperative treatment, [Braasch] 1823—ab
  tumors of urinary, [Judd] 2066—ab
  tumors, operative treatment for, [Fedoroff] (87) 1207
  tumors, results of treatment of, [Geraghty] *1336
  wounds in war, [Legueu] (43) 1384
BLIND sailors and soldiers, 928
  welfare of, 928
BLINDNESS: See also Ophthalmia Neonatorum
BLINDNESS, causes of, 928
  pretended deafness and, detection of, [Keiper] (24) 2069
BLOOD, action of elements of, on vessels, [Yamamoto] (74) 1572
  albumoses in tissues and, with reference to occurrence in gastro-intestinal mucosa, [Abel & others] (6) 1735
  alkali reserve of, decreased, relation of epinephrin hyperglycemia to, [Peters & Geyelin] (70) 850
  ammonia in urine and, in acidosis, [McNeil & Levy] (47) 1910
  and tissue spaces, factors influencing interchange of fluid between, [Scott & others] (4, 5) 1735
  arterial, effect of accumulation of carbon dioxid on *tidal* air and H-ion concentration of, in decerebrate cat, [Scott] (10) 1294
BLOOD, biochemical investigations of urine and, bearing on clinical and experimental medicine, [Folin] *1209
  calcium and magnesium in serum, micromethod for determination of, [Marriott & Howland] (87) 2000
  calcium and tetany, toxicity of phosphates in relation to, [Binger] (65) 942
  calcium in, determination of, [Halverson & Bergeim] (83) 2000
  calcium in serum in pathologic conditions, [Halverson & others] (84) 2000
  calcium, studies in, [Cowie] 147—ab
  carbon dioxid of, and pulmonary ventilation, 1789—E
  catalase in, effect of ether anesthesia, emotions and stimulation of splanchnics on, [Burge] (3) 1735
  chloride in, modification of McLean-Van Slyke method of determining, [Foster] (86) 1198
  cholesterol content of human, [Gorham & Myers] (41) 1737
  cholesterol estimations in, 1975—E
  circulating and stationary, [Prével] (40) 1833
  coagulating property of, index for, [Fonio & Schulsinger] (72) 157
  coagulation index of, [Hitce & Iribarne] (91) 1120
  coagulation, studies in protein intoxication, [Shattuck] (20) 848
  composition, effect of dextrose intravenously on urinary secretion and, [Davis] (15) 238
  corpuscles, diluting fluid for counting, [Diner] *1421
  corpuscles, polychrome stain for protozoa and, 1024
  corpuscles, red, conditions affecting formation of, 2042—E
  corpuscles, red, in severe anemia with elongated and sickle-shaped red corpuscles, [Emmel] (43) 1737
  corpuscles, red, normal shape of mammalian, [Arey] (4) 2146
  corpuscles, stain for protozoa, and, [Watabiki] (139) 679
  corpuscles, variations in resistance to hemolysis, [Rhamy] 1728—C
  Corpuscles, White: See Leukocytes,
  counts, complete, analysis of 998, [Utley] (84) 2071
  creatin and creatinin in, 648—E
  destruction, relation of spleen to blood regeneration and, and to hemolytic jaundice, [Goto] (56) 2149
  determining iso-agglutinin group, priority for simplified method of, [Williamson] 486—C
  diastatic activity of, in diabetes, 385—E
  distribution of, effects of epinephrin on, [Gunning] (12) 1294
  effect of trinitrotoluene on, [Panton] (58) 674
  granulation of, in malaria, cause of, [Hirschfeld] (49) 1118
  in irritable heart, bacteriologic examination of, [Dimond & Briscoe] (4) 1033
  in lungs, 1614—E
  in surgical shock, hemoglobin value of, [Bainbridge & Bullen] (55) 494
  inorganic *phosphates* in serum, micromethod for determination of, [Marriott & Haessler] (88) 2000
  lancet, new, [Stein] *383
  lipoids in anemia, [Bloor & MacPherson] (54) 314, 1176—E
  lipoids in diabetes, [Joslin & others] *375
  lipoids in *nephritis*, [Bloor] (95) 1198
  lipoids, nephritis and acidosis, 1976—E
  meningococci in, [Raffaelli] (108) 677
  muscular work and, 2044—E
  occult, *in stools* with pulmonary tuberculosis, [Lange] (89) 1574
  oxidase reaction of cells in normal and leukemic, [Rosenthal] (22) 848
  peripheral, changes in, consequent to diversion of splenic blood into general circulation, [Burket] (60) 2149
  plasma, bicarbonate concentration of, significance and determination as measure of acidosis, [Van Slyke & Cullen] (50) 149
  platelets, erythrocytic origin of, [Emmel] (107) 1199

- BLOOD platelets, method for counting, [Ottenberg & Rosenthal] *999
  - pressure and arterial sounds, [Roberts] *873
  - pressure, arterial, estimation by auscultation findings, [Tchertkoff] (39) 1117
  - pressure changes, effects of ether anesthesia and of visceral trauma as shown by, [Muns] 404—ab
  - pressure determinations in obstetrics, value of, [Slemons] *778
  - pressure during anesthesia, comparative study, [Miller] 403—ab
  - pressure, effect of pituitary injections on, of febrile patients, [Schmidt] (66) 69
  - pressure from standpoint of clinician, [Dever] (134) 1299
  - pressure, high, action of digitalis on, [Danielopolu] (69) 496
  - pressure, high, association of arterial hypertension with chronic arthritis, [Swett] (18) 1109
  - pressure high, causes of, with reference to syphilis, [McLester] (14) 1908
  - pressure, high, chronic, classification of cases, [Warfield] (19) 1029
  - pressure, high, heart block associated with, [Musser] (19) 406
  - pressure, influence of large doses of digitalis and digitoxin on, [Eggleston] *951
  - pressure, influence of, on interchange of fluid between blood and tissue spaces, [Scott] (4) 1735
  - pressure, low arterial, 1974—E
  - pressure, low, associated with peptone shock and experimental fat embolism, [Simonds] *883
  - pressure, low, outpouring of epinephrin during, 729—E
  - pressure, pulse pressure and hemoglobin in postoperative shock, postoperative hemorrhage and postoperative cardiac dilatation, [Polak] 237—ab
  - pressure, reduction of, by nasal cauterization, [Francis] (11) 944
  - pressure reveals aortic insufficiency, [Amblard] (61) 1386
  - pressure, systolic, following exercise, [Rapport] (60) 69
  - pressure, systolic, in arm and leg with aortic insufficiency, [Heitz] (52) 1036
  - production, effects of experimental plethora on, [Robertson] (53) 590
  - residual nitrogen in, with surgical kidney disease, [Sabroe] (114) 1746
  - serum in marasmus, [Freeman] 146—ab
  - serum, nondependence of protein quotient of, on rapidity of metabolism with reference to noneffect of antipyretics, sodium cacodylate and thyroid extract, [Hanson & McQuarrie] (75) 1738
  - serum, normal, in wounds, [Leary] (12) 1826
  - serum of pregnant women, modification in antitryptic power of, [Ecalle] (31) 758
  - serum, simple method of obtaining, [Wohl] (56) 1910
  - serum, therapeutic use of, [Freeman] (36) 2148
  - solids, total, variations in concentration of sodium chlorid in plasma and in infants, [Courtney & Fales] (4) 1028
  - sugar in, at birth, [Cannata] (52) 1570
  - sugar in, methods for determination of, in reference to condition in blood, [McGuigan & Ross] (91) 1198
  - total amount in body, method to determine, 1419—ab
  - transfusion, immediate, after war wounds, hematologic indications for, 1990
  - transfusion in anemias, [Graves] (106) 943
  - transfusion in pernicious vomiting of pregnancy, [Garnett] (12) 669
  - transfusion of immunized, for chronic bacteremia, [Wekesser] *2182
  - transfusion of unmodified, [Unger] *2159
  - transfusion, sodium citrate, [Bernheim] *359
- BLOOD, urea in urine and, ratio between, after administration of urea, [Addie] (56) 491
  - uric acid content of, in new-born, [Sedgwick & Kingsbury] 147—ab, (3) 588
  - uric acid content of maternal and fetal, [Slemons & Bogert] (44) 1649
  - vessels, wounds of, [Grégoire & Mondor] (42) 1654
  - vessels, wounds of, immediate treatment of, [Sencert] (43) 1654
  - volume, effects of anesthesia on, and relation to production of shock, [Epstein] 403—ab
- BOISSARD, Alphonse, death of, 1633
- BONE and joint infections, Carrel technic in, [Hawley] (14) 670
  - development, deficient, of congenital origin, [Bloom & others] (27) 849
  - fistulous lesion in, skin plastic operation after opening up, [Jayle] (47) 1303
  - grafts, autoplastic, fate of, [Bérard] (51) 244
  - grafts, free, fate of, [Serra] (63) 321
  - growing point in epiphyseal cartilage plate of, localization of, [Haas] (13) 670
  - growth from bone flap in skull, [Sicard & others] (60) 2075
  - growth, studies of regeneration and, [Brooks] (72) 70
  - metastasis of hypernephroma, [D'Agata] (79) 2005
  - Paget's disease of, sarcoma complicating, [Heazlit] (146) 316
  - spread of infection in open bone, bearing on treatment of projectile fracture, [Martin & Petrie] (8) 1740
  - surgery of joints and, with reference to open operative treatment of fractures and method of arthroplasty in ankylosis of elbow joint, [McKenna] *891
  - transplantation from scapula for defect in skull, [Jones] (11) 847
  - tuberculosis of joints and, influence of sun's rays in, [Freiberg] (17) 1109
  - tuberculosis of joints and, reactions to human and bovine tuberculin applied by method of von Pirquet in, [Gauvain] (2) 1652
  - tuberculosis, roentgenotherapy of, [Albert-Weil] (35) 318
  - tumors, new, consecutive to multiple and repeated contusions, [Mori] (48) 855
  - wire ring for shattered, [Sénéchal] (51) 1834
  - wounds in war, persisting fistula following, treatment of, [Dujarier & Desjardins] (46) 156
- BONESETTERS and parliament, 927
- BON-OPTO, 750—P
- BOOKS for war prisoners, 737
- BORCHERDT'S Malt Olive, 39
  - Malt Sugar, 1875
- BOTHRIOCEPHALUS latus, developmental cycle of, [Janicki & Rosen] (45) 2212
- BOTULISM, 472—E
  - and home-canned foods, 1263—E
  - danger of poisoning from vegetables canned by cold-pack method, [Dickson] *966
- BOWDEN Lithia Water misbranded, 1901—P
- BOWEL: See Intestine
- BRACHIAL neuritis and sciatica, [Patrick] *2176
- BRADYCARDIA, atropin and amyl nitrite test in, [Josué & Belloir] (49) 1036
  - oculocardiac reflex in, [Mougeot] (33) 1116
- BRAIN: See also Cerebellum; Pineal Gland; Pituitary Body: Skull
- BRAIN, aneurysms of basal arteries of, indirect trauma as factor in, [Hedinger] (74) 2075
  - apparatus for intraventricular drainage, [Lott] *997
  - development of child, influence of labor on, [Stein] *334
  - dilatation of lateral ventricles in epilepsy, [Thom] (23) 2209
  - echinococcus disease of, [Peters] (76) 858
  - foreign bodies in, [Burger] (36) 2153
  - hernia of, traumatic, [Tenani] (61) 75
  - injuries, Surgeon-General's program for management of, 917
- BRAIN, is there a cerebral heat center? 124—E
  - microscopic examination of, of 2 men dead from commotio cerebri without visible external injury, [Mott] (9) 2151
  - sarcoma simulating hydrocephalus, [Holt] 311—ab
  - tumor, duration and classification of, [Bond] (35) 1828
  - tumor in case clinically considered paresis, [Lowrey] (22) 2209
  - tumor of third ventricle, symptoms with, [Claude & Lhermitte] (34) 946
  - tumor, pathologic somnolency due to, [Francioni] (74) 1917
  - tumor, roentgen treatment of, [Nordentoft] (114) 160
  - tumor showing extensive destruction, [Thompson] (54) 1738
  - wounds of skull and, treatment at advanced station, [Mathieu] (56) 321
- BRAN bread, digestibility of, [Hindhede] (101) 2158
- BRAZIL, sanatoriums for, 300
- BREAD, bran, digestibility of, [Hindhede] (101 2158
  - course, question of, [Hindhede] (96) 1390
  - composition of, and bread card, in France, 1723
  - cutting bread on table, 915—E
  - production, potatoes in relation to, 1189
  - war, 396, 1898
  - war, improving by neutralizing bran ferments, 1458
- BREAST, anatomic substitute for, [Bartlett] (18) 847
  - cancer, evolution of, [Syms] *454
  - cancer, radical cautery operation in, technic for, [Percy] (22) 1736
  - development of, during pregnancy, 1879—E
  - feeding, establishment, maintenance and reinstitution of, [Sedgwick] *417
  - lump in, [Claybrook] (130) 1651
  - Nursing: See Infant Feeding
  - ptosis of, [Massini] (119) 499
  - relation of ovary to uterus and, [Loeb] 236—ab, (167) 1113
- BREATH sounds in incipient tuberculosis, [Bray] *1762
- BRILL'S DISEASE: See Typhus Fever
- BRILLIANT GREEN, antiseptic properties of acriflavine, proflavine and, [Browning & others] (20) 673
  - as antiseptic, value of, [Webb] (20) 493
  - paste in wounds, [Short & others] (2) 1830
- BRITISH Commission on Venereal Diseases, report of, 306
  - committee of inquiry, 1009—E
  - expeditionary forces in France, report of Lord Charnwood on criticisms of medical service of, 737
  - Medical Association and insurance act, 396
  - Medical Association, annual meeting of, 747
  - Medical Reserve Officers, clothing allowance for, 401
  - medical service on western front, [Goodwin] *119
  - surgery at front, [Bowlby & Wallace] (1) 153
  - surgery, development in hospitals on lines of communication in France, [Makins] (9) 242
- BROMIDS, dosage of, in epilepsy and melancholia, [Bernoulli] (67) 1037
- BRONCHITIS, purulent, [Hammond & others] (51) 494
  - spirochete and mycosis, sometimes simulating pulmonary tuberculosis, [Castellani] (55) 1036
- BRONCHOPNEUMONIA following pulmonary hemorrhage, [Reinhardt-Goodwin] (33) 1383
  - in children, treatment of, [Measham] (34) 154
- BRONCHOSCOPY in asthma, [Syme] (18) 493
- BRONCHUS, rupture of left, from trachea, [Patrick] (6) 1473
- BRUCE report, 745
- BRUCK'S serochemical test for syphilis, 1463, [Stillians] *2014
  - serochemical test for syphilis, 400 cases compared with Wassermann reaction, [Smith & Solomon] (48) 1110
- BUENOS AIRES, charitable institutions at, [Coni] (78) 1917
- BULLET, Localization of: See under Foreign Body
- BULLET, modern military, medico-military considerations of, [Acker] *1427
  - Wound: See Wound, Gunshot
- BUREAU of Medical Service established, 1615
- BURNS, fatal superficial, and suprarenals, [Weiskotten] *776
  - ichthyolized petrolatum for, [Saurez] (86) 1479
  - in children, [Blumenau] (83) 76
  - paraffin-tar mixture for frostbites and, [Paraspori] (64) 761
  - paraffin wax film in, [Emerson] *274
  - roentgen-ray, barring of action for, 1108—Ml
- BURSAE, [Earl] 1825—ab
- BURSITIS, subdeltoid, (subacromial), clinical types, pathology and treatment, [Brickner] *1237
- BUSHNELL retirement of, 1274
- BUTTER, typhoid due to, [Boyd] *2030

BOOK NOTICES

- Abt, I. A., The Baby's Food, 587
- Acidosis, Principles of, and Clinical Methods for Its Study, 2034
- Advice to Women on Care of Health Before, During and After Confinement, 230
- Alquier, P., l'Appareillage dans les Fractures de Guerre, 1558
- Anatomy, Manual of, 1558
- Asthma, 586
- Automobile and Gasoline Engine Encyclopedia, Dyke's 1558
- Baby's Food, Recipes for Preparation of, 587
- Ballard, E. F., Epitome of Mental Disorders, 1821
- Bethea, O. W., Practical Materia Medica and Prescription Writing, 1997
- Boardman, H., Psychological Tests, 1904
- Breast, Its Anomalies, Its Diseases, and Their Treatment, 63
- Broomell, I. N., Anatomy and Histology of the Mouth and Teeth, 488
- Brown, O. H., Asthma, 586
- Brown, S., Jr., Sex Worship and Symbolism of Primitive Races, 1194
- Building Human Intelligence, 666
- Burnham, A. C., First Aid and Emergency Treatment, 1822
- Campbell, J. M., Physical Welfare of Mothers and Children, 2141
- Carman, R. D., Roentgen Diagnosis of Diseases of Alimentary Canal, 1025
- Carrel, A., Treatment of Infected Wounds, 1645
- Cataract, Senile, Traumatic and Congenital, 488
- Chest, Diseases of, 2206
- Clark, J. B., Some Personal Recollections of Dr. Janeway, 402
- Cushny, A. R., Secretion of Urine, 1821
- Deaver, J. B., Breast: Its Anomalies, Its Diseases, and Their Treatment, 63
- Dehelly, G., Treatment of Infected Wounds, 1645
- Dercum, F. X., Nervous and Mental Disease, Rest, Suggestion and Other Therapeutic Measures in, 401
- Diagnosis, Differential, of Main Symptoms, Index of, 1730
- Dietetics, Practical, With Reference to Diet in Health and Disease, 936
- Doty, A. H., Good Health, 936
- Draper, G., Acute Poliomyelitis, 402
- Dyke, A. L., Automobile and Gasoline Engine Encyclopedia, 1558
- Ear, Nose and Throat, Operative Surgery of, vol. 2, 488
- Elliot, R. H., Glaucoma, 1026
- Emergencies, Treatment of, 1904
- Faradism and Galvanism, Notes on, 2141
- Field Hygiene and Sanitation, 2206
- First Aid and Emergency Treatment, Text-Book of, 1822
- First-Aid Instruction for Miners, Report on Standardization, 1026
- Fisher, W. A., Cataract, Senile, Traumatic and Congenital, 488
- Food, Baby's, Recipes for Preparation of, 587
- Food for the Sick, 936
- Food for the Worker, 936
- Ford, J. H., Elements of Field Hygiene, 2206
- Foster, M. L., *Diagnosis from Ocular Symptoms*, 1376

Fractures de Guerre, 1558
French H., Index of Differential Diagnosis, 1730
Frenkel, H. S., Tabetic Ataxia, 1105
Galvanism and Faradism, Notes on, 2141
Gerrish, F. H., Sex-Hygiene, 936
Glaucoma, Handbook for General Practitioner, 1026
Good Health: How to Get It and How to Keep It, 936
Graves, L., Modern Dietetics, 936
Greenburg, D., Health Survey of New Haven, 1904
Greenway, J. C., Health Survey of New Haven, 1904
Halberstadt, G. H., First-Aid Instructions for Miners, 1026
Health Survey of New Haven, 1904
Hinshelwood, J., Congenital Word-Blindness, 1730
Hope, E. W., Physical Welfare of Mothers and Children, 2141
Hunt, E. L., Diagnostic Symptoms in Nervous Diseases, 1558
Intelligence, Building Human, 666
Jackson, D. E., Experimental Pharmacology, 586
Janeway, Dr., Some Personal Recollections of, 402
Jones, R., Military Orthopaedics, 401
Knoefel, A. F., First-Aid Instructions for Miners, 1026
Landis, H. R. M., Diseases of Chest, 2206
Lewis, B. G., Offender and His Relations to Law and Society, 307
Loeb, H. W., Operative Surgery of Nose, Throat, and Ear, vol. 2, 488
Loeb, J., Organism as a Whole from Physicochemical Standpoint, 63
Lorand, A., Building Human Intelligence, 666
Lusk, G., Elements of Science of Nutrition, 2064
Lynott, W. A., First-Aid Instructions for Miners, 1026
McClendon, J. F., Physical Chemistry of Vital Phenomena, 1104
McNutt, J. S., Modern Milk Problem in Sanitation, Economics and Agriculture, 1376
Magill E. M., Galvanism and Faradism, 2141
Mason, W. P., Examination of Water, 1997
Materia Medica, Practical, and Prescription Writing, with Illustrations, 1997
Mayer, E. E., Poliomylitis, 1730
Medical Officers, Compendium for, 936
Mental Adjustments, 844
Mental Disorders, Epitome of, 1821
Military Orthopaedics, Notes on, 401
Milk, Modern Problem of, in Sanitation, Economics and Agriculture, 1376
Milk Supply, City, 587
Miller, A., Roentgen Diagnosis of Diseases of Alimentary Canal, 1025
Moore, H. T., Pain and Pleasure, 1904
Morávek, S., Slovak Self Taught, 1376
Morris, M., The Nation's Health: Stamping Out of Venereal Disease 307
Mouth and Teeth, Anatomy and Histology of, 488
Nation's Health: The Stamping Out of Venereal Disease, 307
Nervous and Mental Diseases, Rest, Suggestion and Other Therapeutic Measures in, 401
Norris, G. W., Diseases of Chest, 2206
Nose, Throat, and Ear, Operative Surgery of, vol. 2, 488
Nutrition, Elements of Science of, 2064
Obstetrics for Nurses, 1730
Obstetrics, Text-Book for Use of Students or Practitioners, 1904
Ocular Symptoms, Diagnosis from 1376
Offender and His Relation to Law and Society, 307
Ophthalmology, American Encyclopedia and Dictionary of, 587, 1822
Organism as a Whole from Physico-Chemical Viewpoint, 63
Otis, E. O., Pulmonary Tuberculosis, 845
Qwen, H. R., Treatment of Emergencies, 1904
Pain and Pleasure, 1904
Parker, H. N., City Milk Supply, 587
Pattee, A. F., Practical Dietetics, 936
Pear, T. H., Shell Shock, 1821
Perry, M. A., Food for the Sick, 936
Pharmacology, Experimental, 586
Pharmacy, Theoretical and Practical, Including Arithmetic of Pharmacy, 1997
Physical Chemistry of Vital Phenomena, for Students and Investigators in Biological and Medical Sciences, 1101
Physical Welfare of Mothers and Children: England and Wales, Report on, 2141
Poliomyelitis, Acute, 402
Poliomyelitis, Bibliography of Titles on, 1730
Poliomyelitis in All Its Aspects, 1730
Prescription, Therapeutically, Pharmaceutically, Grammatically and Historically Considered, 1997
Prescription Writing and Practical Materia Medica, with Illustrations, 1997
Psychological Tests, 1904
Radasch, H. E., Manual of Anatomy, 1558
Reed, C. B., Obstetrics for Nurses, 1730
Roble, W. F., Rational Sex Ethics, 402
Roentgen Diagnosis of Diseases of Alimentary Canal, 1025
Rountree, W. S., First-Aid Instructions for Miners, 1026
Ruddiman, E. A., Pharmacy, 1997
Ruhrah, J., Poliomyelitis, 1730
Sanitation for Medical Officers, 1822
Sanitation Practically Applied, 1730
Seaman, G. E., Compendium for Medical Officers, 936
Sellards, A. W., Principles of Acidosis and Clinical Methods for Its Study 2064
Sewage, Standard Methods for Examination of Water and, 666
Sex Ethics, Rational: Physiological and Psychological Study of Sex Lives of Normal Men and Women, With Suggestions for Rational Sex Hygiene, 402
Sex-Hygiene, 936
Sex Worship and Symbolism of Primitive Races; An Interpretation, 1194
Shields, M. J., First-Aid Instructions for Miners, 1026
Shock, Shell, and Its Lessons, 1821
Sight, Sense of, 2065
Slovak (Slavish) Self-Taught, 1376
Smith, G. E., Shell Shock, 1821
Spalding, J. A., Dr. Lyman Spalding, 666
Spalding, Dr. Lyman, Founder of United States Pharmacopoeia, etc., 666
Spindler, F. N., Sense of Sight, 2065
Spitz, G. T., Food for the Worker, 936
Stacpoole, F., Advice to Women of Care of Health Before, After and During Confinement, 230
State Sanitation: A Review of the Work of Massachusetts State Board of Health, 230
Stern, F., Food for the Worker, 936
Strouse, S., Food for the Sick, 936
Tabetic Ataxia, Treatment of, by Means of Systematic Exercise, 1105
Tanton, J., l'Appareillage dans les Fractures de Guerre, 1558
Teeth and Mouth, Anatomy and Histology of, 488
Throat, Nose, and Ear, Operative Surgery of, vol. 2, 488
Tuberculosis, Pulmonary, 845
Urine, Secretion of, 1821
Vedder, Sanitation for Medical Officers, 1822
Venereal Disease, Stamping Out of,: The Nation's Health, 307
Wall, O. A., The Prescription, 1997
Water, Examination of, Chemical and Bacteriological, 1997
Water, Standard Methods for Examination of Sewage and, 666
Wells, F. L., Mental Adjustments, 844
Whipple, G. C., State Sanitation, 230
Williams, J. W., Obstetrics, 1904
Winslow, C.-E. A., Health Survey of New Haven, 1904
Wood, C. A., Ophthalmology, American Encyclopedia and Dictionary of, 587, 1822
Wood, H. B., Sanitation Practically Applied, 1730
Word-Blindness, Congenital, 1730
Wounds, Infected, Treatment of, 1645

C

CADAVERS, calcium chlorid to preserve moisture in anatomic specimens and, [Hemler] *2107
CAFFEIN, effect of, on reaction to carbon dioxid of normal human respiratory mechanism, [Grabfield & Means] (80) 1297
CALCIFICATION by use of vital dyes, [Macklin] (53) 190
CALCIUM and magnesium metabolism, studies in, [Givens] (65, 67) 850
  chlorid to preserve moisture in anatomic specimens and cadavers, [Hemler] *2107
  determination of small amounts of, particularly in blood, [Halverson & Bergeim] (83) 2000
  effect of varying calcium and potassium content of perfusion fluids on vagus inhibition, [Brine] (8) 1291
  hypochlorite, types of organism isolated from water after treatment with, [Smeeton] (10) 670
  in blood and tetany, toxicity of phosphates in relation to, [Binger] (65) 912
  in blood serum in pathologic conditions, [Halverson & others] (81) 2000
  in blood, studies in, [Cowie] 147—ab
  metabolism in chorea and organic nature of chorea, [Provinciali] (82) 1713
  micromethod for determination of magnesium and, in blood serum, [Marriott & Howland] (87) 2000
  spasmophilia a phenomenon from loss of, [Stheeman] (86) 323
CALCREOSE, 821
CALCULI: See also under Organs
CALCULI, clinical study of, based on 198 cases, [Bugbee] *1492
CALIFORNIA medical news, 480, 657, 835, 922, 1017, 1282, 1367, 1630, 1717, 1808, 1894, 2131
  state board April examination, 1729
  venereal disease program of, 1702
CALMETTE succeeds Metchnikoff, 300
CALORIMETRY, clinical, recent contributions of, 1264—E
CAMIOFEN ointment, 1343
CAMOUFLAGE, 476—E
CAMP Beauregard, news of, 1443, 1796
  Cody, news of, 1442, 1705, 2124
  Custer, news of, 1444, 1620, 1707, 1797, 1980, 2125
  Devens, news of, 1443
  Dodge, news of, 1444, 1888
  Doniphan, news of, 1707, 1796, 1888, 1979, 2047
  Funston, news of, 1708, 1888, 1981, 2048, 2125
  Grant, Illinois, news of, 1180, 1444, 1800
  Greene, news of, 1534
  Greenleaf school of military hygiene, [Page & Abbott] 1794
  Hancock, news of, 1441, 1704, 1796, 2124
  Jackson, news of, 1443, 1797
  Kearney, news of, 1534
  Lee, news of, 1180, 1358, 1534, 1618, 1798, 1888, 2047
  Lewis, news of, 1888
  McClelland, news from, 1270
  Pike, news from, 1269, 1444, 1620, 1800, 1981, 2125
  Shelby, news of, 1886
  Sherman, news of, 1707
  Upton, news of, 1618, 1797, 1979
  Wheeler, news of, 1269, 1358, 1441, 1533, 1617, 1705, 1885, 1978, 2046, 2124
  Zachary Taylor, news of, 1180, 1534, 1619, 1799, 1887, 1980, 2047, 2124
CAMPHOR and opium, 635—ab
  in cardiovascular disease, [Marfori] (76) 413
CAMPS, health conditions in, of United States, summary for week ending Dec. 14, 1917, 2121
  training, public health service experts to protect, 207
CANADA and United States, patent medicines in, 1636—P
  medical news, 51, 132, 221, 300, 395, 482, 577, 745 837, 925, 1098, 1188, 1284, 1369, 1454, 1549, 1633, 1719, 1810, 1897, 1989, 2056, 2133
CANADIAN army medical news, 1454
  medical writers censored, 1188
  Public Health Association meeting, 837, 1188
CANAL ZONE, health in, 1286
CANCER: See also Tumor and under organs and regions
CANCER, alleged increase of, [Willcox] (56) 941
  and diabetes, relation between, 2205—ab
CANCER Commission of Harvard University, results of radium treatment at Collis P. Huntington Memorial Hospital by, [Duane & Greenough] (40) 1197
  control of, 395
  experimental production of, 476—E
  frostbite as predisposing factor in, of ear, [Sutton] *2171
  immunity, induced, and tissue growth and degeneration, [Bullock & Rohdenburg] (19) 1827
  in Canada, 1720
  in Colombia, [Montoya] (121) 678
  in Ontario, 925
  in plants, study of, 122—E
  increase of, statistical evidence of, 2117—E
  influence of pregnancy on development, progress and recurrence of cancer, [Bainbridge] 1166—ab
  morphologic appearance of cancer clinically cured by radium and roentgen ray, [Levin & Joseph] *1068
  of mouth, treatment by dentist under direction of physician, 2142—Mi
  pathogenesis and treatment of, [Cisneros] (73) 949
  precancerous lesions [Abell] 2067—ab
  precancerous state and increase of, [Barkley] 2067—ab
  rational treatment of, [Nogier] (54) 156
  reprints on, requests for, [Pearce] 1818—C
  research in Switzerland, 1908—ab
  roentgen treatment of, [Nordentoft] (98) 1208
  skin, analysis of 43 cases, [Sweitzer] *179
  sulphur metabolism in, [Kahn] (59) 941
  traumatism and, [Moreau] (28) 1302
  when operable, [Vaughan] *1952
CANDY containing cholera germs thrown from Austrian airplanes in Italy, 134
CANNING, danger of poisoning from vegetables canned by cold-packed method, [Dickson] *966
  home-canned foods and botulism, 1262—E
  what you can, 1172—E
CANTONMENTS and camp sites, 1182
  garbage saving at, 1726—ab
  news of, 1180, 1269, 1358, 1441, 1533, 1617, 1704, 1796, 1885, 1978, 2046, 2124
  sanitation around new, 478
CAPSULES, insolubility of soft gelatin capsulas, [Dershimer] *1508
CARBOHYDRATE dyspepsia and xerophthalmia, [Rønne] (93) 1918
  exclusive, feeding of infants, evil effects of, [Acuña] (76) 1917
  metabolism, influence of thyroid feeding on, [Kuriyama] (12) 238
  metabolism, thyroid, and parathyroid, 828—E
  utilization of, in relatively high and low cereal diets, [Zentmire & Fowler] (46) 1649
CARBON dioxid, [Roger] (49) 74
  dioxid and oxygen dead space in man, [Pearce & Hoover] (10) 1735
  dioxid and regulation of respiration, 735—E
  dioxid, effect of accumulation of, on tidal air and on H-ion concentration of arterial blood in decerebrate cat, [Scott] (10) 1294
  dioxid, effect of caffein on reaction to, of normal human respiratory mechanism, [Grabfield & Means] (80) 1297
  dioxid, method of determination of carbonates and, in solution, [Van Slyke] (51) 149
  dioxid snow in xeroderma pigmentosum, [Lomholt] (115) 2078
  monoxid poisoning, [McNally] *1587
  monoxid poisoning in motor boats, [Harbitz] (119) 1746
  monoxid poisoning in steel industry, 937—ME
CARBONACEOUS dusts, dangers from explosion of, 201—E
CARBONATED Colfax Mineral Water misbranded, 1901—P
CARBONATES, method of determination of carbon dioxid and, in solution, [Van Slyke] (51) 149

CARBUNCLE of upper lip, [Bradburn] (103) 1381
CARCINOMA: See Cancer
CARDIORENAL DISEASE: See under Heart and Kidney
CARDIOSPASM dilator, [Larimore] *2105
CARDIOVASCULAR DISEASE, camphor in, [Marfori] (76) 413
  diagnosis of, 1360
  disease in 2 cases of severe myopathy, [Navarro & Correas] (83) 414
  methods and results of examinations by cardiovascular and tuberculosis commission at second Plattsburg training camp for Reserve Officers, [Francine & others] *2110
  oral sepsis and, [Brown] 2207—ab
CARIES, dental, popular impressions about, 829—E
CAROTID BODY tumors, [Lund] *348
CARREL and Dakin Solution: See also Dakin Solution
CARREL and Dakin solution for wounds, simplified method for preparation of, [Rosengarten] *1075
  and Dakin treatment, [Bevan] 1727—C, [Welch, Dakin] 1994—C, [Bloodgood, McCormack] 2061—C
  and Dakin treatment of wounds, report of special committee appointed by director general of British Army Medical Services, 1881
  method and Dakin's solution in abortive treatment of wound infection, [Sherman] *185
  method for infected war wounds, 286—E, [Gibson] (23) 1109
  technic in bone and joint infections, [Hawley] (14) 670
  technic, is it applicable in base hospitals, [Guillot & Woimant] (58) 1037
  treatment of suppurative processes, experiences with, [Gramen] (122) 2008
CARRIERS: See also under names of diseases, i. e. Diphtheria carriers, Typhoid carriers, etc.
CARTILAGE plate of bones, epiphyseal, localization of growing point in, [Haas] (13) 670
CASTOR OIL as lubricant for wounds and dressings, [Revillet] (35) 1302
CASTRATION: See Sterilization
CASUALTY clearing stations, [Goodwin] *636
CAT, sensory metameres in hind leg of, [de Boer] (100) 1480
CATALYSIS, importance of superficial tension of medium in ferment action and, [Groll] (99) 2158
CATARACT extraction, suction, [Barraquer & Barraquer] (102) 2006
  vacuum aspiration extraction of, in capsule, [Wieden] (69) 856
CATHETERIZATION of infants, 1819
  retrograde, in wounds involving urinary passages, [Veber] (141) 679
CATSKILL water supply, 1530—E
CAUDA EQUINA, bullet in, for 17 months, [Bellot] (21) 317
  disease following thyroid metastasis, [Skversky] (70) 592
CAUSALGIA, [Stopford] (19) 1033
  alcohol nerve blocking in, [Pitres & Marchand] (60) 1477
CECOSTOMY in septic peritonitis, [Nyulasy] (4) 852
CECUM, left-sided ascending colon and, with absence of transverse colon, [Corlette] (10) 594
CELIOHYSTERECTOMY for puerperal eclampsia and placenta praevia, [Taulbee] 2144—ab
CEPHAELIN, synthetic derivatives of, and ipecac alkaloids, pharmacologic study of, [Walters & others] (82) 1297
  synthetic derivatives of, and ipecac, protozoocidal and bactericidal action of, [Walters & others] (28) 2069
CEPHALIN, thromboplastic action of, and degree of unsaturation, [McLean] (21) 238
CEREBELLUM, cyst in, [Düring] (66) 1206
CEREBROSPINAL FLUID constantly sterile with severe otogenous meningitis, [Borries] (98) 764
CEREBROSPINAL FLUID diagnostic values of Wassermann tests and, in psychiatry, Fell] (4) 753
  effect of removal of, by lumbar puncture on papilledema, [Spiller & de Schweinitz] [67] 592
  Emanuel-Cutting mastiche test for examining, of psychopathic subjects, [Smith & Lowrey] (29) 1649
  gum mastic test, mechanism and significance of, [Immerman] *2027
  in acute anterior poliomyelitis, [Kolmer & others] (9) 2068
  in anterior poliomyelitis, report of 108 cases, [Overholser] (38) 1471
  in stimulating growth of meningococcus, [Shearer] (32) 2073
  influence of treatment of syphilis on different reactions of, [With] (103) 2158
  mastiche and potassium permanganate tests of, of insane, [Lowrey] (11) 489
  pathologic, color reaction in, [Chiaravalloti & Vaglio] (81) 1743
  pressure, [Skoog] *1064
  tests, comparative value of Wassermann, colloidal gold and other, [Hammes] (1) 2068
CEREBRUM: See Brain
CERTIFICATE, revocation of, invalid provisions for, 1732—Ml
CESAREAN SECTION, [McGuigan] 1832—ab, [Martin] (10) 2003
  extraperitoneal, simple method of performing, [Cherry] (5) 1647
  histologic study of 50 uteri removed at, [J. W. Williams] (45) 1999
  in placenta praevia, [Boyd] (3) 237
  in toxemia of pregnancy, [McKinnie] 1561—ab
  preeclamptic, [Poucher] 1294—ab
  premature detachment of placenta with delivery of live baby by, [Hillis] *1969
  scar, anatomic study, [Losee] (1) 237
  scars, histologic study, [Spalding] *1847
CHALAZION, painless and bloodless removal of, without lid clamp, [Bernstein] *532
CHAMLEY, S. R., still loose, 749—P
CHANCRE, soft, sodium arseniate in chancroid and, [Goubeau] (36) 1568
CHANCROID, [Pusey & others] *1004
  sodium arseniate in soft chancre and, [Goubeau] (36) 1568
  treatment of, [Robbins & Seabury] *1217
CHARCOAL, animal, action of, on extracts of organs, [Houssay] (88) 2076
CHARCOT'S opinion of German medicine, [Roberts] 2204—C
CHARITABLE institutions at Buenos Aires, [Coni] (78) 1917
CHARNWOOD, Lord, report of, on criticisms of medical service of British expeditionary forces in France, 738
CHASE'S Nerve Pills, 1640—P
CHEESE in dietetic treatment of nutritional disturbances in infants, [Menshikoff] (87) 1479
  poisoning, toxicogenic bacillus isolated from cheese, [Levin] (41) 1031
CHEMICAL industries, exposition of, 746
  products, committee on, 1551
  synthetic, biochemical processes for, 735—E
CHENOPODIUM, oil of, production of renal changes by fatty oils and, and protective action of diet on kidney, [Salant & Bengis] (69) 240
  oil of, pharmacology of, [Salant] *2016
CHEST: See Thorax
CHICKENPOX, prophylactic vaccination against, [Michael] (13) 1562
CHILD labor day, 1942—ab
  labor law, federal, becomes effective, 746
  labor laws, hamstringing, 1026—ab
  Welfare Congress, International, 1188
CHILDREN, appendicitis in, 33 cases of, [Wood] (30) 1034
CHILDREN, ascites from heart-liver disease in child under 3, [Martelli] (59) 761
  atypical, managing of, [Hudson-Makuen] 20—ab
  Bárány's sign in epileptics and, [Tracy] (87) 70
  bronchopneumonia in, treatment of, [Measham] (34) 154
  burns in, [Blumenau] (83) 76
  cancer of liver in, [Crozer] 145—ab
  cirrhosis of liver from inherited syphilis in, [Cozzolino] (58) 761, [Pentagna] (61) 2156
  convulsions in, immediate and remote prognosis, [Collin & Revon] (40) 411
  creatin excretion in, influence of protein intake on, [Denis & Kramer] (41) 149
  dosage for, [de los Terreros] (73) 1305
  fat incapacity in, familial tendency to, [Southworth] *516
  food for, from 2 to 7, 822—T
  food requirements of, [Macgowan] 61—C
  indicanuria in, [McClanahan] 311—ab
  meningitis in, intramuscular serotherapy of, [Fanchiulli] (62) 1916
  meningitis in young, [Korteweg] (110) 160
  mortality, control of, in England, 1436—E
  nephritis in, [Hill] (3) 1562
  nephritis in, Edebohl's operation in, [Morse] *525
  operating on, at request of others than parents, 668—Ml
  paralysis of arm with pain in young children, transient, [Conterno] (53) 1570
  phenolsulphonephthalein elimination in infants and, [Gittings & Mitchell] (2) 1028
  physically handicapped, recommendations for outdoor, fresh-air and open-window classes, [Smith & others] *2093
  pneumonia in, [Myers] (146) 409
  pneumonia in, atypical forms of, [Garrahan] (93) 2158
  pneumonia in, mortality and treatment with reference to use of alcohol, [Koplik] *1661
  pyelitis in, acute, [de Rezende] (90) 1658
  rights of, [Pinard] (12) 317
  School: See also School, Medical Inspection of
  tuberculosis in, diagnosis of, [Chadwick & Morgan] (36) 590
  tuberculosis of faucial tonsils in, [Mitchell] (24) 944
  tuberculosis of, focal, relation of apical tuberculosis of adults to, [Opie] (56) 590
  tuberculosis, pulmonary, [Navarro] (100) 1744
  vulvovaginitis in, antigonococcus vaccine in, [Condat] (26) 72
  welfare of mothers and, in Ireland, 1905—ME
  welfare work for, during war at Havre, [Loir & Legangneux] (19) 1301
CHILDREN'S BUREAU, examinations for appointments in, 925
CHINA, hookworm in mines of, 1701—E
  medical colleges of, 141
  medicine in, [Wu Lien Teh] 250—ab
  work of Rockefeller Foundation in, 1327—ab
CHIPPEWA Natural Spring Water misbranded, 1901—P
  (Calco) 2115
CHLORAMINE-T, 2115
  in sterilization of wounds, [Carrel & Hartmann] (65) 239
  paste for sterilization of wounds, [Daufresne] (64) 239
CHLORIDS, estimation of, in body fluids, [Harding & Mason] (51) 314
  in blood, modification of McLean-Van Slyke method of determination of, [Foster] (86) 1196
CHLORIN gas in scabies, [Clark & Raper] (6) 757
  group, relative germicidal efficiency of antiseptics of, [Dakin & Dunham] (13) 2151
  poisoning, acute death from, [Klotz] (76) 1472
CHLORINATED eucalyptol-Dakin, 1081
  paraffin oil-Dakin, 1081
CHLOROFORM in sterilization of cultures, 2140
CHOLAGOGUE, is bile a? 386—E
CHOLECYSTECTOMY, indications for, [Porter] (31) 1109
  versus cholecystostomy, [Porter] *518, [Cochems & Bender] 1468—ab
  versus cholecystotomy, [Martin] 1468—ab
  without drainage, [Willis] *1943
CHOLECYSTITIS, acute, [McClanahan] 1468—ab
  with and without gallstones with classification of symptoms, [Hendon] (141) 1113
CHOLECYSTOSTOMY versus cholecystectomy, [Cochems & Bender] 1468—ab
CHOLECYSTOTOMY, postoperative dressing for, [Breuer] *1420
  versus cholecystectomy, [Martin] 1468—ab
CHOLELITHIASIS: See Gallbladder Calculus
CHOLERA, candy containing germs thrown from Austrian airplanes in Italy, 134
  carriers and immunity, [Schöbl & Panganiban] (93) 1565
  feces and bile of cholera cases and carriers, bacteriologic investigation of, [Crowell & Johnston] (95) 1565
  hygiene and prophylaxis of, among troops, [Capogrossi] (77) 157
  patients, pregnant, treatment of, [Lowell] (75) 1812
  uremia following, mortality from, [Rogers] (15) 2210
  uremia in, [Valk & de Langan] (95) 247
CHOLESTEROL, biochemical relationships in metabolism in respect to, 474—E
  estimations in blood, 1975—E
  in culture medium, effect of development of germs, [Manfredi] (74) 1479
  in human blood, [Gorham & Myers] (44) 1737
  in pleural effusion, [Arnell] (81) 1573
  physiopathologic study of, [Castañeda] (76) 1119
  studies in, [Luden] (64) 2149
CHONDRODYSTROPHIA: See Achondroplasia
CHOREA, [Schiøtz] (115) 1748
  organic nature and calcium metabolism in, [Provinciali] (82) 1743
CHRISTIAN SCIENCE, [Coonley] 1641—C
  and prayers for profit, [Coonley] 2139—C
  Monitor on "Science," 1267—E
CHYLOTHORAX in infant, [Pisek] 310—ab
CICATRIX, extensive unstable, relaxation incisions with, [Davis] *2085
CIGARET SMOKING, immediate effect on healthy men and on cases of "soldiers' heart," [Parkinson & Koefod] (25) 1033
CILIARY ganglion, symptomatology of certain infectious processes involving ciliary ganglion or its connections, [Archambault] (46) 1564
CINCHONIN, suitability of more soluble salts of quinin and, for intravenous injections, [Rogers] (9) 1473
CIRRHOSIS of Liver: See Liver, Cirrhosis
CITRESIA, 39
CITY not liable for injury from materials negligently left at hospital, 143—Ml
CIVIL service examination, 52, 746, 925
CIVILIZATION and deterioration, 912—E
CLEMENCEAU, Georges, a physician, 1976—E
CLEMENTS, Dr. Nicholas, marketing fake neosalvarsan, 930—P
CLEVELAND, Grover, operation on, 1085—E
CLIMATE and consumptive, [Trask] 65
CLINICAL Association of Peroral Endoscopists, organization of, 2056
  Congress of Surgeons of North America, meeting of, 1285, 1370, 1434—E, 1438
CLONORCHIS sinensis in Cuba, [Querens] (94) 414
CLOTHES, salvaging clothes from battlefields and camps, 1702

CLOTHING allowance for British Medical Reserve Officers, 101
  production for army, sanitary supervision of, 1091
CLUBFOOT: See Talipes
COAL and gasoline question in Netherlands, 1099
  and milk card plague, 2056
  card and physicians, 1370
  tickets, 1100
COASTWISE vessels not required to have physicians, 753—Ml
COD LIVER OIL, effect of, on growth in "intestinal infantilism" [Holt & others] (7) 1028
COLD, effect of, on body, investigation of, [Lake] (26) 1741
  injuries to feet and hands from, [Cottet] (62) 1656
  storage, 176—ab
COLDS, common, [Rucker] 1067—ab
  common, etiology of, [Foster] (27) 1828
  shotgun vaccines for, 1642
CHOLITIS, chronic, [Zugsmith] (163) 492
COLLAPSE, volatile irritants in, 1008—E
COLLEGES, foreign medical, 562
  medical classification of, 518
  medical, description of, 553
  medical, foreign, 562
  medical, of China, 141
  medical of United States recognized in Canada, 1291
  notes, 544
COLLOIDAL gold test, preparation of solution and application to diseases of nervous system, [Black & others] *1855
  gold, Wassermann and other spinal fluid tests, comparative value of, [Hammes] (1) 2068
COLLOIDS, [Poulsson] (136) 500
  intravenous injections of, and other pseudosolutions, [Busquet] (31) 318
COLLOSOL Iodine refused recognition by Council, 841—P
COLON, cancer of rectum and pelvic, [Lynch] *1775
  cancer of splenic flexure of, [Hartwell] (35) 1110
  left-sided cecum and ascending colon with absence of transverse colon, [Corlette] (10) 594
  operative treatment of chronic lesions of ascending, [de Pury] (41) 2154
  roentgenologically considered, [Case] (1) 847
  short circuiting, new method for, [Griess] (113) 152
COLORADO medical news, 1282, 1717, 2053
  state board January examination, 1820
  state board July examination, 2140
COLORED Medical Officers, training school for, 294
  Officers training camp at Fort Des Moines, 1615
COLOSTOMY, transverse, [Mummery] (8) 944
COMMA, that confounded comma, 1285
COMPENSATION bill and war insurance, 650—E, 652
COMPLEMENT Binding: See Serodiagnosis
  Fixation: See Serodiagnosis
  preservation of, [Rhamy] *973
CONJUNCTIVITIS, factitious, [Francaviglia] (69) 246
  lymphatic-nodular keratoconjunctivitis, [Goldbach] *102
CONNECTICUT Eclectic July examination, 1729
  medical news, 48, 218, 392, 835, 1096, 1894, 2131
  state board July examination, 2064, 2140
CONSCIOUSNESS during stupor, [Wimmer] (98) 248
CONSTIPATION: See also Intestine, Stasis
CONSTIPATION, chronic, autointoxication in, [Soper] *1511
  chronic, enterocolonic conditions in, [Hanes] *1513
  chronic, ileosigmoidostomy for, [Ceballos] (94) 1744
  chronic, rectal conditions in, [Graham] *1515
  intestinal preoccupations of aged, [Merklen] (42) 854
  liquid agar-agar in, [Brown & Sweek] *467
  spastic, gastric conditions in, [Morgan] *1675
CONSUMPTION: See Tuberculosis, Pulmonary
CONTAGIOUS DISEASES, deficiencies of present methods of fighting, [Onnen] (113) 115
CONTRACTURES and muscular movements, unintentional, after war wounds, [Bicca] (73) 2005
  or paralysis after wounds, pathogenesis of, [Salmon] (77) 2075
  reflex, and paralysis after wounds, [Molhant] (34) 2153
  reflex, stubborn, of extremities, surgical treatment of, 1950
  traumatic reflex paralysis or, disturbances in circulation with, [Heitz] (36) 155
CONVULSIONS in children, immediate and remote prognosis, [Collin & Revon] (10) 111
COOKING, public instruction in, 1976—ab
COOPER'S New Discovery misbranded, 59—P
  Quick Relief, misbranded, 59—P
CORNEA, conical, or anterior myopia, [Jackson] *793
  tattooing, [Allport] 1641—C, [Wyler] 1902—C
  tattooing, India ink infiltration substitute for, [Verhoeff] *1120
  transparent peripheral ectasia of, case of, [Marquez] (100) 415
  ulcers, priority in application of heat in, [Nagel] 933—C, [Fox] 1193—C
CORNMEAL, food value of, [Weill & Mouriquand] (69) 157
CORPUS *callosum, puncture of,* [Wallau] (120) 677
  callosum, relative amount of sheathing substance in intradural nerve roots and, [Koch & Koch] (62) 850
  luteum cysts, hematoma of ovary including, [Novak] (47) 1999
  luteum, influence on development of mammary gland, 1879—E
COTTON from military hospitals, *renovation of,* 2135
COTTONSEED meal injury, iron as antidote to, [Withers & Carruth] *(89) 2000*
  meal, nutrition investigations in, [Richardson & Green] (60) 850
COUGH with heart disease, [Blind & Ricard] (41) 244
COUNCILS of National Defense, state, medical sections of, to meet, 1014
COURT PLASTER, tetanus in, 1101—ab
  United States Department of Justice warns against, 300
COWS, Jersey and Holstein, comparative economy in milk production from, 1792—E
CRANIUM: See Skull
CRAZY Mineral Water misbranded, 1901—P
CREATIN and creatinin in blood, 648—E
  excretion, influence of protein intake on, in children, [Denis & Kramer] (41) 149
  origin of, [Baumann & Hines] (92) 1198
CREATININ and creatin in blood, 648—E
CREATINURIA production in normal adults, [Denis & Minot] (93) 1198
  significance of, 1008—E
CREMATED bodies, arsenic in, 124—ab
CREOFOS, 58—P
CREOSOTE—Delson and Creofos, 58—P
CRESOL, gangrene of thumb after application of compound solution of, [von Stapelmohr] (100) 248
CRETINISM, nervous, [Crookshank] (20) 1831
CRIPPLES, Canadian war, 1719
  center for industrial reeducation established, 1189
  conference to study problem of reeducation of war, 135
  congress for study of mutilated in war, 1457
  crutches for, [Abrahamsen] (90) 1574
  occupational training for war, [Marie & Rodiet] (54) 1205, [McMurtrie] 1752—ab
  reeducation, 397
  reeducation and rehabilitation of cripples maimed and otherwise disabled by war, [Franz] 63—ME
  soldiers, care of, [Bailey] (76) 1650
  soldiers, care of, in England, [Kidner] *1167
CRIPPLES, helping select occupation for, [McMurtrie] 1590—ab
  war, training and openings for, proposed investigation of, [Kelly] 1551—C
CROWN gall, action of by-products of organism of, 122—E
CRUCIAL ligaments, operation for repair of, [Groves] (14) 2003
CRUTCHES, [Abrahamsen] (90) 1574
CRUZ, Oswaldo, memorial tablet for, 483
CRYSTAL Lithium Springs Water misbranded, 1901—P
CRYSTALLINE *deposits in eye,* [Lewis] *12
CULTURE medium, cholesterol in, effect of, on development of germs, [Manfredi] (71) 1479
CUTTING-EMANUEL mastiche test for examining spinal fluid of psychopathic subjects, [Smith & Lowrey] (29) 1619
CYST, Echinococcus: See Echinococcosis synovial, [Finochietto] (94) 2076
CYSTINE, influence of, on balance of nitrogen in dogs maintained on low protein diet, [Lewis] (59) 850
CYSTITIS caused by bacillus colihemolyticus, case of, [Lyon] *1342
  chronic, with retention, iodin fumes in, [Cifuentes] (129) 678

D

DAKIN'S SOLUTION: See also Carrel and Dakin Solution
DAKIN'S SOLUTION in abortive treatment of wound infection, [Sherman] *185
  sterilization by, and secondary hemorrhage, [Bashford] (14) 1831
DAMAGES for failure to remove portion of tube and gauze, 587—Ml
DASTRE, Professor J. A. F., death of, 1812
DEAFNESS, hysterical, absolute, in soldiers, pathology, diagnosis and *treatment of,* [Hurst & Peters] (1) 1653
  normal gun deafness, [Jobson] (28) 1741
  pretended blindness and, detection of, [Kelper] (24) 2069
  simulation of total, test for detection, [Bilancioni] (71) 246
  sudden and profound, [Stein] *706
  war, prevention of, critical review, [Guild] (71) 1472
DEATH, dynamics of process of, [*Osterhout*] (96) 1198
  signs of real and apparent, [Terson] (65) 1478
  tests for apparent, [Terson] (41) 1035
DECOMPRESSION, cranial, for cerebral spastic paralysis due to hemorrhage, report of 65 cases, [*Sharpe & Farrell*] *1056
DEFECTIVES: See Feebleminded
DEFENDANTS, cannot pay experts for examining, 2206—ME
DEFICIENCY diseases, [Weill & Mouriquand] (57) 1915
DEGENERACY: See Feebleminded
DEGREES conferred on distinguished foreign medical officers, 1438
DELAWARE medical news, 1717
  state board June examination, 1903
DELINQUENTS, juvenile, physical status of, [Bass & Loeber] 2143—ab
  juvenile, survey of, [Faber & Ritter] (3) 2208
DEMENTIA praecox, heredity of, [Boven] (54) 74
  praecox or paresis? [Gosline] (49) 1110
DENTAL Corps in Army, creating a, 1355
  education in New Zealand, [Winslow] 348—ab
  School, United States, in Philadelphia, 1532
  students, exemption asked for, 1181
  surgeons, organization of, 1098
DENTISTS, shortage of, 54
  treatment of cancer of mouth by, under direction of physician, 2142—Ml
DEPOPULATION problem, [Richet] (18) 1301, [Pinard] (22) 1301
DERMATITIS, light, [Haxthausen] (75) 1306
  primrose, and anaphylaxis, [Simpson] *95
  vegetating and suppurating, [Gougerot & Clara] (66) 674
DERMATOLOGY, problems of metabolism and immunity in, [Bloch] (48) 1118
DERMOGRAPHISM in diagnosis, [Schwartz] (88) 497
DE WITT'S Eclectic Cure misbranded, 1192—P
  Liver, Blood and Kidney Cure misbranded, 1192—P
DEXTROSE in muscular tissue, quantitative estimation of, [Hoagland] (63) 314
  intravenously, effect on blood composition and urinary secretion, [Davis] (15) 238
DIABETES innoceus, [Graham] (21) 72
  insipidus, [Nicolaysen] (92) 1918
  insipidus as sequel to gunshot wound of head, [Graham] (21) 1998
  insipidus, kidneys in, 1083—E
  insipidus, mechanism of diuresis and of action of pituitary extract on, [Christie & Stewart] (11) 406
  insipidus, pituitary extracts in, [Norgaard] (121) 2008, [Barker & Mosenthal] (31) 2070
  insipidus, report of case, [Barach] (15) 754
  insipidus, spinal puncture in, [Graham] *1498
  pancreatic, [Harody] (97) 1744
DIABETES MELLITUS, acidosis in nephritis and, [Christie] (50) 407
  and cancer, relation between, 2205—ab
  associated with hemochromatosis [McCreery] (22) 149
  blood lipoids in, [Joslin & others] *375
  diastatic activity of blood in, 385—E
  dietetic treatment of, [Cammidge] (3) 1652
  early diagnosis of, simple method involving strain on capacity of tissues to utilize glucose, [Addis] *109
  heredity and infection in, [Williams] (17) 1029
  influence of low diets or Allen treatment on physical vigor of diabetics, [Williams] (32) 1196, 1431—E
  polyneuritis from, [Pitres & Marchang] (50) 1834
  proving fatal in 2 months in girl of 15, [Gautier & Saloz] (41) 411
  starvation treatment of, edema danger signal in, [Croftan] *1962
  treatment of, [Stähelin] (55) 2155
  vegetable food for those with, [Wardall] *1859
DIABETICS, strength of, 1431—E
DIAGNOSIS, dermographism in, [Schwartz] (88) 497
  plea for better, [Rankin] 2067—ab
DIAPHRAGM, best mode of access to space below, [Merola] (94) 1120
  foreign bodies in, 25 cases, [Patel & Papillon] (28) 317
  inflammation of, [Mouriquand] (80) 496
DIARRHEAS accompanying gastric *achylia,* [*Rehfuss*] *1328
  acute, in infants, 645—T, 934
  campaign, [Hanns] (58) 156
  chronic, due to enterocolonic con*ditions,* [Friedenwald] *1669
  chronic enterocolonic, surgical *treatment of,* [Gant] *1603
  chronic, rectal and sigmoid *conditions in,* [Jelke] *1671
  emetin, 916—E
  emetin, clinical and experimental, [Kilgore & Liu] (21) 848
  in infants, classification and treatment, [Morse] 2208—ab
  infectious, intracutaneous reaction in, [Baker] (74) 1297
DIATHERMY in gonorrheal ophthalmia, [Kraft & ten Doesschate] *(88) 1389*
  in gonorrheal orchitis and epididymitis, [Canovas] (131) 678
DICHLORAMINE-T, Abbott, 1081
  in infected wounds, use of, [Dakin & others] *27
  in wounds of war, [Sweet] *1076
DIET: See also Nutrition and under names of diseases
DIET and nutrition, literature on, 843
  as factor in production of pathologic changes, [Salant] *603
  maternal, and milk production, 730—E

DIET of prisoners of war in Germany, [Taylor] *1575, 1613—E
unfermentable, in gastro-intestinal dyspepsia, [Moruzzi] (65) 75
unwise economies in, 1435—E
war, and metabolism, 1173—E
war, and scurvy, 1268—ab
DIETARIES and foods, [Hindhede] (101) 1208
cost of, according to income, [Bjørum & Heiberg] (102-104) 248
DIGESTIVE TRACT: See Gastro-Intestinal Tract
DIGITALIS, action of, on high blood pressure, [Danielopolu] (69) 496
alleged titration of, [Redonnet] (66) 1037
effect of, on heart disease with pulsus alternans, [Windle] (37) 1384
in auricular fibrillation, [Cushny] (15) 243
influence of large doses of digitoxin and, on blood pressures, [Eggleston] *951
therapy and present shortage of drugs, [Hatcher] *1524
DIGITOXIN, influence of large doses of digitalis and, on blood pressures, [Eggleston] *95
DIPHTHERIA antitoxin, anaphylactic shock after injection of, [Schønfelder] (138) 500
antitoxin in powder form for local treatment of bacilli carriers, [Benard] (48) 244
bacilli, anatomic changes produced in nerve cells by toxin of, [Simmons] (49) 490
bacilli, differentiation of pseudodiphtheria bacilli and, [Aviragnet & Le Soudier] (57) 1742
bacilli, fermentation of sugar and anaerobiosis of, [Stévenin] (31) 1653
bacilli, subcutaneous and intracutaneous methods of testing virulence of, [Smeeton] (28) 1030
carriers, local medication in treatment of, [Roskam] (44) 2073
death rate lowered, 1989
group of bacteria, importance of further study of, 1352—E
immunization, preparation and method of using toxin-antitoxin mixtures for, [Zingher] (30) 1828
laryngeal, intubation for, [Cartin] *460
ocular lesions with, [Di Giuseppe] (72) 1478
pathogenesis and evolution of, [Danysz] (42) 1204
Schick test with reference to negro, [Wright] (30) 1030
skin, 1793—E
toxin, reaction of kidney to, [Faber] (48) 590
toxin, titration of, in unilaterally nephrectomized guinea-pigs, [Wahl] (25) 1030
wound, complicated by rheumatic fever, [Bicak] *38
wound infection among returned soldiers, report of outbreak of, [Fitzgerald & Robertson] *791
DIPHTHEROID group of organisms and streptococci, study of, [Bellon] (50) 671
DIPLOCOCCUS erysipelas with septicemia, [Connio] (62) 948
DIPLOMA mill, medical side line in neosalvarsan factory, 930—P
stolen, 660
DIRT, eating, 486
DISEASES, chronic, exacerbations of, from standpoint of hospitalization, [Lundh] (101) 78
conditions among troops in United States, 1535, 1620, 1884, 1982, 2049
germs of, reported use of, by Germany as war measure, 285—E, 300
of greatest mortality, 1820
DISINFECTANT: See also Antiseptics; Sterilization
DISINFECTANTS, uniform culture media in bacteriologic examination of, [Wright] (37) 670
DISPENSARIES, free, and war, 1398—ab
industrial, in preventive medicine, [McCurdy] *1318
DISTOMIASIS, pulmonary, human, caused by paragonimus westermanni, [Nakagawa] (51) 1110
DISTRICT OF COLUMBIA July examination, 1557
medical news, 1282, 1630
DIVERTICULITIS of large intestine, [Mayo] *781
DOAN'S Kidney Pills, 1636—P
DODONEUS, quadricentennial of, 1599—ab
DOSAGE for children, [de los Terreros] (73) 1305
DRAFT of men over 31, 1996
DRAINAGE, filiform, 302
tube, negligent anchoring of, 752—Ml
DRESSINGS, castor oil as lubricant for wounds and, [Revillet] (35) 1302
infrequent, postoperative, at front, 838
oiled gauze and absorbing power of cotton sponges, [Sollmann] *1073
paper as surgical, [Hibbs] 400—C
sphagnum moss as surgical, 1790—E
sugared petrolatum for, [d'Emidio] (68) 322
surgical, Red Cross manual for making, 1014
DRINKING fountains, sanitary and unsanitary, 1267—E
DRUGGIST: See Pharmacist
DRUGLESS healers in Illinois, 1194
practitioners, validity of statute relative to, 143—Ml
DRUGS, adulterated imported, 1792—E
American-made synthetics, quality of, 1018
eruption in infant, [Lomholt] (102) 78
habit forming, "raising" quantity of narcotic in prescription, [Morss] 140—C
habitués, health department to treat, 751—ab
in United States Army, an indication of progress, 125—E
misbranding, 2206—C
increase in price of, 748
simple vs. combined, [van Leeuwen] (111) 2078
synthetic, shortage of, [Stieglitz] 400—C
therapy, present status of, [Coleman] (116) 851
DUODENUM, congenital defect of, bile above and below absent portion, [Cockayne] (7) 2071
dilated, with reference to chronic obstruction in visceroptosis, [Vanderhoof] *510
open safety pin in infant's stomach and, [Perkins] *2104
ulcer, chronic, [Rovsing] (86) 950
ulcer of stomach and, chronic, surgical treatment and results, [Devine] (14) 1301
ulcer of stomach and, experimental, influence of, on hunger contractions of empty stomach, [Dundon] (14) 1294
ulcer, practical diagnosis of, [Fortmann] (61) 1916
DURHAM fermentation tube, improved modification of, [Graves] *1202
DUSTS, carbonaceous, explosion of, 201—E
DYES, excretion of, [Cecil & Well] *521
vital, calcification by use of, [Macklin] (53) 490
DYSENTERY, amebic, emetin bismuth iodid in, [Waddell & others] (57) 674, [Leboeuf] (100) 676
amebic, emetin plus arsenic in, [Aimé] (34) 1116
amebic, ipecac and its derivatives in, [Crowell] *6
carriers, amebic, among cases of irritable heart, emetin bismuth iodid in detection and treatment of, [Jepps & Meakins] (14) 2151
epidemic of, at Boston State Hospital due to member of paratyphoid enteritidis group, [Morse & Tryon] (19) 940
masked, [Cecikas] (108) 1659
DYSPEPSIA after lose of teeth, [Mollière] (22) 2211
butyric, [Chevrel] (41) 947
carbohydrate, and xeropthalmia, [Rønne] (93) 1918
fermented whey in certain forms of, [Moruzzi] (30) 1568
gastro-intestinal, unfermentable diet in, [Moruzzi] (65) 75
suprarenal, [Loeper & others] (40) 947, (35) 1653
DYSPHONIA, inhalation of ether in mutism, tachypnea and, of hysteric origin, [Trocello] (81) 1039
DYSPITUITARISM, multiple hemangiomas of skin associated with, [Head] (12) 406
DYSPNEA, relation of vital capacity of lungs to, [Peabody & Wentworth] (35) 1196
DYSTHYROIDISM, roentgen rays in, [Palmer] (123) 1381

DEATHS

Abt, Joseph L., 137
Ackroyd, Capt. H., 1019
Adams, John Quincy, 1636
Adams, Quintus L., 2138
Adams, Russell D., 138
Agee, John H., 1814
Aitken, Major J., 660
Albright, George H., 1287
Aldrich, Stewart W., 1101
Alleman, Lewis Arthur Welles, 1813
Allen, Americus R., 1286
Allen, Charles James, 2138
Allen, David Gordon, 1020
Allen, Fay Austin, 929
Allen, Stephen Arthur, 305
Allen, Thomas A., 929
Allers, Lieut.-Col. Henry, 1635
Alliaud, Lieut. G., 483
Alvarez, R., 483, 1099
Ames, Edward Richard 1020
Anderson, Lieut. D., 1370
Anderson, Edward, 749
Anderson, Thomas L., 749
Anderson, William, 484
Andres, Lieut. John Henry, Jr., 1373
Andrews, Harry Alta, 2137
Andrews, Robert C., 929
Angelsberg, Anton, 581
Antonini, Lieut. L., 134
Arango, F. A., 1286
Armendt, Louis G., 304
Armitage, Capt. F. R. 1019
Armstrong, William Alexander, 2060
Arp, August Henry, 1101
Arthur, Capt. D, 1019
Asbury, William Henry Harrison, 1900
Aspinall, Capt. W. R., 1550
Atkinson, Lieut. A., 660
Atkinson, Lieut. C. M., 1019
Atkinson, Maj. J. M., 133
Atwood, LeGrand, 1553
Augier, Major L., 660
Auletta, Lieut. G., 1019
Ault, Charles, 138
Aurelio, Capt. C. T., 1550
Austin, Sebe Duane, 1460
Axtell, John Fremont, 1020
Ayres, Albert R., 57
Ayers, Edward Augustus, 2136
Bachelder, Lucien F., 399
Bachman, George A., 2060
Baeyer, Adolf von, 746
Bailey, Bert Heald, 223
Bailey, J. P., 138
Baker, Frederica R., 662
Baker, John William, 2059
Baker, William Allen, 2136
Baker, William M., 1286
Ballari, A., 1989
Balsley, Turner Eugene, 1373
Baldwin, Mary Elizabeth. 2136
Baltzer, Herman F. W., 2137
Bangasser, Edward Barnwell, 399
Barker, Brent L., 1373
Barker, Caleb, Jr., 749
Barr, Jacob Cullen, 1900
Barras, W. G., 483
Barraza, F. C., 1989
Barron, William Rowan, 841
Barry, Denis W., 2137
Barthel, Oscar Henry, 399
Bartholow, James M., 1724
Bartlet, J. H., 133
Bartlett, John R., 1724
Bassett, Howard W., 1190
Bates, Lieut. Floyd Smith, 581
Batterson, William Thomas, 749
Battey, Sarah A. French, 484
Bauduy, William Keating, 304
Baum, Theresa G. Breene, 1553
Baumann, Louis, 305
Baurichter, Frederick Bernard, 1191
Baynum, Mary Herrick, 581
Beardsley, Charles E., 223
Beaver, William M., 749
Bedient, Seba S., 224
Bell, William Herman, 137
Belmont, Capt. F., 660
Bemus, Morris Norton, 2136
Benham, Charles W., 1460
Bennett, Leo. E., 57
Benson, William O., 1991
Bentham, R., 134
Bentley, David Ben., 662
Bergoend, M., 660
Bergonzolo, Lieut. C., 1019
Bernard, John Allen, 1287
Bernhardi, Carl Oscar, 1373
Bernstein, Arthur H., 1286
Berthold, Jacob L., 224
Best, Ernest E., 581
Betts, George William, 138
Beurnier, L., 134
Beyea, James Louis. 2138
Bharucha, Capt. R. H., 746
Bianchi, Lieut. M., 1019
Bickett, J. A., 1553
Bienvenu, Delphin, 1020
Bilhoefer, Andrew John, 1287
Billingslea, Major Charles Clarence, 662
Bindewald, William Andrew, 1286
Bingham, Albert L., 1191
Binswanger, Otto Saly, 1286
Biondi, A., 134, 1099
Birkbeck, Samuel, 399
Birkey, Isaac Meyer, 841
Bissell, Jerome Samuel, 1286
Black, Orlando E., 138
Black, Frank B., 2202
Black, Robert C., 224
Blackwelder, James F., 1635
Blair, Hugh Walter, 56
Blake, Robie, 484
Blakely, Almon Darwin, 929
Blanchard, Edward Sherburne, 1101
Blandy, Lieut.-Col. F. D., 1019
Blaney, William James Francis, 1287
Blaydes, John A., 2202
Bliss, George Eugene, 581
Bloom, Daniel M., 1991
Bobo, Lacy Kindred, 1190
Boeri, Capt. E., 1550
Boes, William Frederic, 2137
Boissard, Alphonse, 1633
Boland, Patrick S., 1020
Bollatti, G., 483
Bonner, Daisy Estelle Brown, 1460
Bonnet, Leon, 1370
Boorman, Thomas G., 1190
Boots, Samuel S., 2059
Borin, Homer Abraham, 1814
Bornet, Dr., 1099
Bostock, Capt. R. A., 1019
Boswell, Davis, 2138
Bourdillon, C?, 660
Bourne, Richard West, 2138
Bournet, P., 1099
Bouton, William P., 1191
Bowerman, Albert Claude, 484
Bowker, Capt. Charles Harvey, 1101
Boyd, Samuel B., 224
Bockius, Albert Ashmead, 138
Bradford, James A., 484
Bradley, Hubbard North, 1020
Bradley, Simeon Cole, 1991
Bradley-Smith, Lieut. J. G., 483
Brady, Thomas C., 1191
Brady, William Francis, 1190
Brew, R. H., 133
Brock, John Edgar, 929
Bromwell, John E., 2137
Brooks, George C., 138
Brown, Edgar W., 138
Brown, Edward Manning, 2136
Brown, Samuel Hastings, 2202
Bruce, George W., 1459
Brundidge, Emerson K., 1020
Brunet, Joseph Lorenzo, 2060
Bucher, Isaac Riley, 2133
Buchner, Eduard, 746
Buck, Charles Edward, 138
Buhrmaster, Edward William, 1287
Bull, Capt. B. A., 1370
Bull, William Izard, 1190
Bullis, William Henry, 224
Bunce, Horace Edward, Jr., 1724
Bunonomo, Lieut. A., 1370
Burgess, Oliver Graham, 929
Burk, Decatur H., 1724
Burke, Franklin Timothy, 56
Burns, John Byron, 1459
Burns, Newell Bly, 1723
Burritt, Herbert M., 1553
Busby, William L., 305
Bush, Alison B., 305
Bushnell, George Elmer, 399
Butt, William Redfield, 1101
Bynum, Hark W., 2137
Byrnes, Capt. James Carroll, 1101
Cabell, Robert H., 1460
Caldwell, William Minns, 1191
Call, Charles Henry, 399
Callahan, Thomas Edward, 749
Calthrop, E. S., 660
Calvert, W. H., 134
Campbell, Arthur Lee, 1459
Campbell, George Abbott, 2137
Campbell, Henry Jefferson, 223
Campbell, Lawrence Wilbur, 57
Capwell, Harry Morris, 1560
Card, Edson, 1190
Carey, Thomas A., 581
Carnachan, George N., 1636
Carratu, Col. C., 1019
Carter, Adolphus Henry, 2137
Carter, Robert H., 841
Castellaw, Charles S., 399
Castornio, Capt. G., 1550
Cato, Robert Eugene, 2137
Cavatorti, Lieut. P., 1019
Chamberlin, George Montgomery, 138
Chambers, Thomas H., 224
Chambrelent, Dr., 1099
Champlin, John Carder, 1636
Chance, E. A., 929
Chapin, Amory, 224
Chapin, Harry Lorenzo, 1814
Chappell, Thomas A., 749

Chauveau, *Professor*, 222
Charasse, Capt. N. G., 1370
Cheany, William J., 138
Chicoine, Isidore Hermanigilde, 749
Chidester, Chauncey W., 1553
Chisholm, Murdoch, 2056, 2202
Christie, E., 224
Christie, Robert J., 1101
Church, Joseph George, 1724
Cilley, Herbert Harrison, 1020
Cilley, Orran George, 2201
Clapp, Arthur Martin, 1814
Clarac, G., 483
Clark, Capt. Lewis Emerson, 581
Clayton, William F., 1553
Clerke, John Wesley, 1020
Cleaves, Margaret Abigail, 1813
Coda, D., 134
Codd, A. F., 134
Cohen, Lieut. B., 483
Cohen, Henry Julius, 1553
Colby, Margaret Enort, 2137
Cole, Jefferson D., 1101
Cole, William H., 1059
Collirer, John Adams, 929
Collier, Morey Charles, 1190
Collins, Oliver A., 2137
Conant, Clarence M., 1020
Condict, Alice Byran, 2136
Connell, John E., 841
Conrad, Lieut. George Walter H., 1723
Converse, Harvey H., 484
Conwell, L. V., 929
Cook, Edgar T., 305
Cook, Edward James, 57
Cooper, John T., 840
Copestake, John, 1159
Cornwall, Frank, 1101
Cosby, Forest G., 224
Cote, Honore Joseph, 1991
Cotter, Peter Gregory, 138
Cottrell, Samuel Parker, 2058
Couto, A. da Graça, 1286
Cowles, Pembroke M., 138
Cox, E., 483
Cox, Logan, 1287
Cox, William E., 484
Craig, George Edward, 1020
Craig, William Gibson, 1900
Crawshaw, Henry A., 2138
Creighton, Martha J., 1814
Crocker, John Myrick, 1553
Cronin, Henry William, 841
Crooker, Leander James, 1553
Cummings, David Joseph, 56
Cummings, John Calvin, 2202
Curlette, John Francis, 399
Curran, Sylvanus Chase, 2137
Currie, John Zebulon, 1899
Curry, Edwin A., 1101
Curtis, A. M., 748
Curtis, Wilbur F., 2202
Custis, George W. N., 1814
da Altare, Capt. A. Restagno, 134
Dages, Dr., 1099
Daggy, Thornton, 581
Daley, Emmett Burr, 2137
Dalton, Charles C., 1724
Daly, Col. T., 1370
Darling, J. Homer, 1553
Darling, Nathaniel Babcock, 2138
Darling, T. B., 746
Darrach, Mary, 1636
Dastre, Jules Albert Franck, 1812
Dastre, A. J. F., 1550
Davenport, Nora Soule, 1560
Davies, James Goravar Amerig, 399
Davis, Charles Henry, 1813
Davis, Fielding Lewis, 1814
Davis, Jefferson A., 1724
Davis, Napoleon B., 581
Davis, Newton C., 1724
Davis, Oliver Morton, 929
Davis, Thomas Pettway, 581
Dawn, Ferdinand F., 138
Daykin, Arthur J., 749
Dayton, George M., 1020
Dean, Oran A., 1724
de Campos, Carlos, Jr., 1191
De Carre, Alfred, 1190
De Cou, Charles A., 581
De Frantz, Charles David, 749
Delatour, Col. Harry Archibald, 1019
Delens, E., 1550
Deravin, Capt. F. A., 660
Deshon, Lieut.-Col. George Durfee, 137
Deutsch, Lieut. Sigmund, 2059
Deutsch, William S., 1991
Deveny, Thomas Edward, 1635
de Varona, Joseph de la Cruz, 2138
DeVilbiss, Allen, 1372
Dexter, John Milton, 1724
Dickinson, William L., 581
Dickson, Fred C., 1287
Diehl, Oliver R., 1814
Dingee, Charles, 1724
Dink, John R., 1991
Doan, Henry H., 304
Dobbins, James H., 1724
Dogliotti, Lieut. A., 1019
Donnelly, John Bernard, 1101
Dorpat, Joseph, 1160
Dorsey, L. J., 224
Drake, Elbert Clarence, 749
Drake, Frederick Phineas, 1159
Drake, John South, 305
Drennan, Capt. R. H., 746
Dry, David Miller, 1101
Duffy, Charles Joseph, 138
Duguit, Lieutenant, 1370
Dumbauld, William Allen, 399
Duncan, Ernest J., 841
Dundas, Thomas Andrew, 138
Dunn, Lieut. A. G., 1370
Dunn, Charles A., 57
Dunn, Surg. Henry Albert, 2136
Dwight, James, 484
Earle, James Clark, 749
East, Capt. G. D., 746
Ebright, Leonidus Strickland, 304
Eccles, Capt. H. D., 1019
Edwards, Capt. A. C., 746
Edwards, James R., 1553
Eisenbise, Joshua M., 57
Eldredge, Richard Leonard, 2137
Elliott, Frederick Boty, 1813
Elliott, Lieut. J. F., 1550
Elliott, James Henry, 1286
Elliott, Jesse D., 1900
Ellis, Charles Z., 1724
Ellis, Gilbert Knapp, 1460
Ellison, John Henry, 1460
Ellison, Lieut. S. C., 660
Elliston, Thomas Evans, 1553
Ensign, Samuel, 1553
Ermentrout, Sallie Justina, 2137
Escudero, M. F., 1370
Esslinger, Levi Pickett, 1991
Evans, Bernard Palissy, 840
Evans, Joseph, 1191
Evans, Capt. W. J., 1370
Evertz, Adolph Matthew, 57
Ewing, John Herbert, 929
Ewing, William Beer, 399
Ezell, William B., 305
Fahrney, Peter D., 1286
Falkenstein, Andrew N., 1724
Farnsworth, Floyd S., 1553
Farquhar, Raleigh Claude, 748
Farrow, Edwin D., 304
Felix, Benjamin F., 1814
Fergola, Capt. E., 483
Ferguson, James M., 1287
Ferree, Robert Burnsides, 1553
Feser, Raymond Leonard, 929
Fetherolf, Abraham Philip, 1991
Fisher, J. B., 1019
Fitzgerald, John James, 1020
Fitzsimmons, 1st Lieut. William *Thomas, 929*
Fitzsimmons, Capt. Paul, 56
Fleetwood, W. N., 138
Fletcher, Burrell A., 1900
Flippin, Armistead Brooks, 1287
Follansbee, Elizabeth A., 929
Foltz, Abner Esgar, 748
Foote, Frank Marion, 2202
Forbes, Charles, 1553
Ford, John Heard, 2202
Foreman, Lieut. J. E., 483
Forrester, William Anson, 1020
Fort, Homer F., 304
Fortner, Benjamin F., 1287
Fox, Henry Albert, 137
Fraker, George William, 1991
Frankel, Jacob J., 662
Fraser, William Halliday, 56
Freeman, Eunice Cyrus, 138
French, Samuel William, 224
Frere, Capt. F. J., 134
Fulda, Carl, 1814
Fuller, Lafayette D., 2137
Fullerton, Henry T., 1724
Gabel, Harrison, 1900
Gabrysewski, A., 483
Gaddis, Levi Springer, 929
Gallay, H., 746
Gallotti, Lieut. B., 1550
Gallup, Isaac B., 1724
Gamman, Alfred M., 1460
Gardner, Frank Herbert, 1459
Gardner, John, 1101
Garlick, James Henry, 1460
Garrey, John Eugene, 224
Garrison, Howard Chew, 1636
Garwood, Jessie B. Pierce, 1373
Gates, Josiah, 581
Gennerich, Charles, 1190
Gerberich, Daniel P., 2137
Gerhart, Joseph M., 2060
Gervais, Paul Emory, 484
Gibson, James A., 1459
Gilbert, Charles E., 138
Gilbert, James Stifer, 1459
Gillam, William S., 929
Gillard, Edwin, 1553
Gillette, Hubbard L., 662
Ginn, Charles Miller, 399
Giordani, A. J., 1370
Givens, Alonzo, 581
Gochnaur, Lieut. Orlando Merrill, 1899
Gohier, M., 1099
Gordon, David Cleveland, 2138
Gose, Ira F., 1000
Goulding, Charles Orvis, 2059
Grable, Joseph H., 223
Grasse, Daniel Frederick, 223
Graveline, Louis C. B., 484
Graves, Isaac Seldon, 399
Graves, Richard S., 224
Gray, Albert Stone, 2201
Gray, Myron Dwight, 1190
Gray, Webster Eber, 224
Green, Albert Eugene, 399
Green, Capt. Augustin de Yterbide, 2059
Green, Mary J., 1814
Green, Robert E., 1101
Greenawalt, George Leiter, 2137
Greenberg, Lieut. Augustus Abraham, 581
Greene, Walter D., 662
Griffin, Patrick F., 57
Griffin, Staten E., 1101
Griffis, William T., 2060
Griswold, Lieut. *James Brown, 1635*
Griswold, Ralph B., 841
Grosvenor, John Milton, 1190
Growdon, Samuel B., 1190
Grubbs, Owen W., 1636
Grubbs, Thomas Elmer, 1020
Guiteras, Ramon, 2136
Gustin, Ralph E., 1814
Gutherson, William Francis, 1635
Haden, George Tate, 581
Hagemeyer, A. T., 2138
Halrsine, Capt. O., 134
Hall, Andrew Jackson, 1724
Hall, Sloan F., 1814
Hall, Wright, 1460
Hand, Samuel Patton, 840
Hannah, Thomas Henry, 1191
Hannan, James Cowper, 581
Hansler, Joseph A., 1373
Hanson, Edward Mathew, 2201
Harbottle, John Taylor, 840
Hardie, Capt. F., 1550
Hargett, R. M., 1373
Harold, Nathan G., 138
Harpel, Frederick Theodore, 662
Harris, Charles Hocks, 929
Harris, Capt J. C., 1019
Harris, James Nelson, 1991
Harrison, Joseph James, 1724
Harrison, William, 305
Hart, Fred H., 841
Hartely, Sophia Meindermann, 138
Haskell, Harry Wallace, 484
Haugh, Charles Francis, 57
Haven, James Alexander, 223
Haviland, Nathaniel Clark Bacon, 57
Hawkins, John W., 1373
Hay, Thomas Hamilton, 223
Hayes, Robert Goodloe Harper, 56
Hazelton, George William, 1101
Heacock, James, 1373
Heffernan, Lieut.-Col. F. J. C., 660
Hell, Henry Dinkel, 1020
Heller, Jacob B., 292
Helm, Amos H., 2201
Henderson, Capt. R. L., 1550
Hendrickson, Skidmore, 929
Henkel, William E., 1900
Hernandez, B., 1370
Herriman, Elbridge A., 2060
Herring, William T., 137
Hewett, James Daniel, 1553
Hiatt, John Thomas, 749
Hiley, Lieut. R. F., 1550
Hill, Jesse W., 1460
Hill, Richard S., 56
Hilton, Elizabeth Louise D'Artoise-Traver-Francis, 138
Hinckley, Herschel D., 929
Hinman, Spencer De Forest, 138
Hirtz, P., 483
Hitchcock, Charles Sumner, 662
Hodge, Floyd John, 1287
Hodgson, John Hamilton, 662
Hoffa, William Huber, 1991
Holbrook, Silas Pinckney, 2060
Holcomb, H. C. H., 1460
Holding, George W., 581
Holton, Quitman, 223
Honan, James Henry, 1899
Honan, William Patrick, 1553
Hooper, Simon Elston, 2202
Horn, Levi A., 1724
Horner, A. M., 1460
Horning, David W., 56
Horstman, August George, 1286
Horton, Lieut.-Col. J. H., 746
Hoskins, Thomas J., 138
Houck, Oscar, 138
Houghton, Estella Horton, 1813
House, Charles Francis, 2201
House, George H. F., 2136
Howard, Charles Willard, 2058
Howard, Edward Stephen, 57
Howard, James Spencer, 2136
Howe, Lieut. George Plumer, 1286
Howland, Charles Hubbard, 224
Howland, William Victor, 224
Hoxsey, John H., 2136
Hoy, William S., 137
Hubbard, Silas, 224
Huet, E., 1721
Huffman, Obadiah Layton, 1459
Hughes, George W., 481
Hughes, Peter, 1286
Hughes, Thomas McCrary, 1373
Hulsizer, Green Robbins, 929
Humfreville, Daniel W., 305
Humphreys, Albert, 224
Hunt, Charles Cummins, 1635
Hunt, Wilbur Alden, 304
Hunter, Samuel Wood 1020
Hunter, W. Godfrey, 1813
Hurley, Thomas W., 399
Hurtt, Edgar DeWitt, 1814
Hussey, Augustus Alphonso, 56
Hutchinson, Wilbur Laurin, 138
Inda, Sigismund Edward, 399
Irwin, Brig.-Gen. Bernard John Dowling, 2136
James, Charles Bush, 304
James, Harry Joseph, 399
Jameson, Rt. Hon. Sir Leander Starr, 1989
Jeffers, Wellington C., 1287
Jenkins, Theron Dyke, 484
Jerkins, William L., 748
Jernegan, *Holmes Mayhew, 57*
Jewett, George Wood, 1460
Jobe, Belfield Neud, 224
Johnson, Alexander Bryan, 1101
Johnson, Edward, 1724
Johnson, Francis W., 305
Johnson, Harry Rayburn, 399
Johnson, Jesse Ralph, 1286
Johnson, Phebe Rebekah, 224
Johnson, Samuel A., 2059
Johnston, D. Howard, 1991
Johnston, Thomas Wilson, 2060
Johnstone, John Craig, 1724
Jolley, *William Fletcher, 1900*
Jones, Adna Balche, 1814
Jones, Edward H., 1814
Jones, Frank G., 305
Jones, Fremont C., 1459
Jones, Henry D., 2138
Jones, Herbert Gordon, 223
Jones, Israel Cone, 2136
Jones, James Ambrose, 304
Jones, John Taylor, 2059
Jones, McMillan, 581
Jones, Pitt Harold, 1636
Jones, Samuel, 138
Jordan, Loran W., 1373
Jouty, A., 1370 1551
Julian, Abner J. P., 841
Kamerling, Andrew, 2202
Kane, John J., 305
Kaple, John D., 2059
Kattenbracker, Alwine, 581
Kavanaugh, Kate S. Trainor, 749
Kearns, Archibald J., 224
Keegan, William A., 662
Keim, William Henry, 2059
Keller, Alvin H., 1814
Kellogg, Kenneth Evernghim, 581
Kells, Joseph Miller, 304
Kelly, Thomas Edwin, 1191
Kelsey, Charles Boyd, 662
Kemberling, I. O., 1190
Kennedy, Allan Anthony, 224
Kennedy, Robert Buchanan, 223
Kennedy, Thomas Scilles, 1636
Kent, Richard Wallopie, 2202
Kerr, Robert Andrew, 581
Karrmann, Edward William, 2059
Kesseler, Aloysius, 2138
Keys, William Scott, 138
Kidd, F. W., 1370
Kilgour, John Coleman, 581
Kimbrough, Thomas J. S., 2138
Kincaid, David Ashby, 2138
King, D. R., 134
King, Herbert Maxon, 56
King, William H., 2202
Kinner, Hugo, 1287
Kirghis, Adrien J., 56
Kirker, George Alexander, 581
Kirkland, Major W. D., 746
Kirkpatrick, Rollin Alexander, 581
Klopp, Eli Leinbach, 1372
Knapp, Joseph J., 1636
Knapp, Moses, 2060
Knapp, Samuel O., 1724
Knight, James Henry, 2202
Knode, Robert C., 1020
Knowlton, Charles Benjamin, 57
Kocher, Theodor, 483
Kolmer, John, 1724
Koons, Ralph Frederick, 581
Koontz, James William, 1991
Kudlich, Hans, 2060
Kurtz, Clarence Morgan, 2137
Kurz, John Wesley, 1020
Kynett, Harold Havelock, 1373
Laden, Michael Richard, 1459
Lafferty, Alfred L., 1459
Lameroux, Scott T., 749
Lambert, Adelaide, 2202
Lang, James, 1191
Lankford, Livius, 484
Lauderbaugh, Franklin B., 484
Laughlin, John Royer 2201
Lawrence, Robert E., 224
Laws, Frederick F., 929

Lay, James E. J., 581
Lea, Stephen T., 662
League, T. R., 1814
Leaky, Lieut.-Col. A. W. D., 660
Lecerf, J., 660
Le Corre, F., 660
Le Dantec, F., 134
Lee, Lewis A., 2202
Lee, Thomas Jefferson, 1190
Legludic, Dr., 1458
Lehman, Abraham L., 1724
Leigh, Hezekiah Gilbert, Jr., 1459
Leigh, Jonathan, 1460
Leiser, Oscar M., 2058
Lente, Harry Hallock, 2137
Le Page, W., 134
Lewandowski, Joseph, 1724
Lewis, Richard H., 224
Lewis, Samuel E., 2059
Libby, Augustine, B., 1191
Lindenmeyer, George, 1991
Lindsey, Joseph Ferdinand, Jr., 1287
Ling, George W., 1191
Litzenberger, Henry A., 1373
Livingston, James Benjamin, 1636
Livon, Charles, 1019
Loberg, Adolph E., 399
Logan, John P., 2202
Logan, Samuel D., 1460
Logan, Wade Minor, 1553
Loggins, James A., 224
Lones. Charles Edwin, 56
Long, Isaac Stover, 484
Lovell, Frank Blair, 1900
Lowry, Nelson Horatio, 57
Lucas, Harry V., 399
Lukens, Anna, 137
Lukens, Merriken B., 1724
Lyman, Francis Anderson, 2059
Malcolm, Isaac B., 2137
Marvin, Jerome P., 1553
Mason, Harriet Scudder, 1190
Mason, Walter Scott, 749
Mathias, John Swope, 1287
Mathieu, Albert, 397
Matson, Lieut. George Hiram, Jr., 840
Matthews, George Andrew, 57
Matthews, Joseph H., 2202
Maxfield, Warren A., 749
Mayberry, Edwin Nelson, 399
MacCaffry, Ward Boleyn, 1814
Maccia, Lieut. G., 1550
Mac Connell, Joseph K., 840
MacFarland, Franklin H., 224
Macfarlane, Capt. I., 660
Machiavelli, V., 134
Maclin, James B., 399
MacRobbie, Douglas Gray, 841
Magenheimer, Lieut. V. A., 581
Magistretti, A., 134
Magnin, Ami Jacques, 2059
Maine, Frank E., 1101
Malatesta, Joseph Mark, 2060
Malerba, P., 1721
Malgat, Dr., 1019
Mall, Franklin Paine, 1899
Manning, Edward M., 305
Manouvriez, Dr., 1019
Marable, Thomas Howard, 1899
Marbourg, Esther Lydia Wilhelmina Wright Nippes, 137
Marchard, John B., 1553
Marguerat, Eugene Francois, 662
Markey, Francis Frederick, 841
Marks, William Fink, 57
Marrero, F. G., 399
Marshall, W. L., 305
Marstellar, Ira Walton, 399
Martin, Leonidas B., 1991
McCallie, William Albert, 1724
McClurg, Capt. Walter Audubon, 56
McClumphy, William Gibson, 2137
McCooey, John Francis, 2138
McCormick, Thomas Joseph Henry, 1636
McCracken, A. H., 134
McCray, Robert S., 305
McDonagh, George Raymond, 1459
McDonald, Moses Alfred, 57
McEnery, John Charles, 484
McGurk, Robert, 929
McIntyre, David, 1636
McKee, Alexander, 57
McKeehan, George Henry, 305
McKellar, Duncan, 305
McKinstry, James Fletcher, Jr., 137
McLaughlin, Andrew J., 57
McLellan, Vardaman S., 1459
McMillan, James P., 305
McNutt, A. C., 1724
McQuiddy, Robert Irvin, 1287
McQuillen, James, 2060
McVail, Sir David Caldwell, 1721
McWhorter, George Tilgham, 224
McWilliams, John James, 224
Meacham, Edgar Jehial, 304
Mehlmann, Emma, 1373
Meisenhelder, Edmund W., 2136
Melde. Olaf T., 2059
Menocal, R. G., 483
Mercer, Andrew Barclay, 662
Mesirow, Elias B., 2137
Metts, Horace Lee, 1191
Meyer, Herman, 1814
Meyer, Samuel, 841
Miller, Andrew Baxter, 1459
Miller, Elmer Orren, 57
Miller, Glenn Everett, 224
Miller, Joseph A. H., 56
Miller, James, 2059
Milliken, Stewart Anderson, 56
Mitchell, Jesse B., 1724
Mongour, Charles, 222
Montgomery, James Henry, 223
Montgomery, R. M., 2202
Moody, Adelbert E., 57
Moore, George B., 305
Moore. Harvin C., 662
Moore, Samuel Marcus, 2136
Morin, Captain, 1370
Morin Jacob Maurice, 1813
Morris, John Earhart, 1190
Morrison, Paul S., 1724
Morrison, Henry Alexander, 1020
Morse, Leroy Frederick, 1101
Mosely, Charles Horace Lincoln, 581
Moser F., 1455
Moses, Thomas Freeman, 1991
Moss, Leland A., 399
Motter, Thomas S., 1814
Moxon, Philip Wilfred Travis, 1020
Mullinix, Prementer, 1190
Mumford, John Francis, 1814
Mundorff, George Theodore, 841
Munn, Marshall Curtis, 1813
Munro, Lieut. J. S., 660
Murphy. Claire W., 2059
Murphy, George, 1814
Murphy, Lieut. John Charles, 1814
Myers. Joseph Charles, 1191
Myers, Rudolph, 1724
Nash, Eugene B., 1991
Nathan, Albert, 1724
Neathery, A. H., 223
Neely, Isaac Lonzo, 224
Neill, Henry K., 749
Neligan, Captain, 1370
Newington, H. F. H., 746
Newman, Harmer M., 1459
Newton, Edwin Dorset, 1636
Nichols, James Allen, 484
Nickerson, Harry A., 1813
Nichol, Ira Irving, 662
Nolan, Thomas J., 57
Noland, Ira N., 2202
Norris, Albert A., 2060
Norris, Martha Marcella, 138
Norris, Sarah F. Harris, 1460
North, Charles H., 2201
Nourse, Charles H., 1460
Null, Lycurgus S., 304
Nussle, Albert Charles, 2138
Nutting, Charles W., 1286
O'Brien, William Francis, 1460
Ocasek, Charles J., 1190
Oeri, R., 1370
O'Farrell, Michael, 1191
Ogle, Hercules, 138
O'Hara, Warren Joseph, 305
Oldshue, John West, 748
Olney, Floyd B., 662
O'Neal, Samuel Andrew, 2060
Openshaw, Lieut.-Col. E. H., 1370
Oppenheim, R., 1455
Orentreich, Samuel A., 1724
Orlandini, L., 483
Orr, Joseph Orlando, 1101
Orr, Wilson J., 1814
Otis, John C., 1020
Ott, John Jacob, 2059
Outwater, Stewart Wilson, 223
Overholt, John L., 1020
Owen, James Williamson, 57
Owens, Daniel W., 1553
Owens, William Wayne, 2058
Packer, Thurston Green, 224
Page, Benjamin Maltby, 1190
Page, James Augustus, 138
Page, Leslie Thomas, 1101
Palmer, Charles Richard, 581
Panter, A. E., 1550
Park, Bertha S., 581
Parker, Moses Greeley, 1372
Parks, Thomas Crawford, 841
Partridge, James, 224
Pasanis, Dr., 1019
Paton, Charles James, 929
Patriarche, P., 1099
Payne, Charles S., 2201
Payne, Philander W., 581
Peck, Frederick Whittlesey, 1190
Peck, Solomon H., 1020
Peebles, Alvin Roy, 1900
Pendleton, John Strother, 840
Penn, James Leslie, 224
Penquite, Walter, 224
Perry, Lewis Marion, 484
Peter, Capt. A. G., 483
Peyrot, J., 1989
Phillips, James A., 2138
Phillips, Joseph A., 224
Picqué, Lucien, 134, 222
Pilcher, Wyman W., 1459
Pinault, Nic. Jose, 1101
Pipes, Felix H., 137
Pirie, Capt. G. S., 746
Pittaluga, Lieut. F., 1370
Polcher, Lieut. G., 1550
Pollard, William Shannon, 1813
Porter, Henry L., 2137
Porter, Mary O'Brien, 1899
Porter, Maj. W. G., 134
Posey, Addison Cornelius, 56
Potter, H. A., 1370
Powell, Thomas Jefferson, 2137
Powers, Abram Milton, 305
Prather, William F., 1020
Pratt, Charles G., 1101
Presbrey, Silas Dean, 1635
Preston, Henry Green, 137
Provines, William E., 224
Pursselley, Walter L., 224
Puviani, Lieut. P., 483
Pyburn, George, 484
Quackenbush, Frederick Briggs, 1553
Queen, Asst. Surg. Dudley W., 1991
Quigley, John M., 1101
Rainwater, James H., 57
Rambousek, J., 1721
Ramsey, Burdette, 484
Ransom, Frederick Page, 2059
Rastall, Frank Wilder, 138
Rave, Edward George, 484
Rawlins, Capt. J. B., 1019
Ray, Blake Edwin, 581
Ray, David M., 1553
Ray, Robert Lee, 1724
Rayner, E., 483
Read, Henry Nash, 1020
Reade, Thomas Maher, 1813
Reagor, Frank Berry, 224
Reasons, S. A., 2202
Record, Henry A., 57
Redaelli, Lieut. S., 1550
Reed, William Boardman, 1899
Reedy, William Henry, 1020
Reid, Robert McDowell, 841
Reily, Charles Guy, 138
Rendle, C. B., 1019
Reser, Joseph H. H., 2060
Rettig, Frederick A., 399
Rex, Loren Edgar, 138
Reynaud, P., 1370
Reynolds, George Benton, 484
Reynolds, Vernon M., 581
Rice, Wilbur C., 1020
Richard, G. H. Clemens, 1636
Richard, Mentor V., 57
Richardson, Bert Leon, 137
Richardson, Bradbury Moulton, 1287
Richardson, Robert McAllister, 1286
Ridley, Francis M., 304
Rieman, Frank David, 2137
Rigg, John Edwin, 1459
Riley, James N., 1287
Riley, Sameul H., 1814
Rimini, E., 1019
Rittenour, Amos Avery, 1553
Robbins, Ansel Jerome, 1900
Roberts, John Benjamin, 1020
Robertson, George A., 57
Robinson, Edwin Taylor, 1020
Robinson, John Byron, 57
Robinson, Samuel R., 56
Rodriquez, R. del V., 1455
Roeder, Julius A., 399
Rogers, John G., 1724
Rosati, Major-Gen. T., 838
Rose, Capt. H. E., 483
Roseberry, Isaac A., 749
Rosenbloom, Augustus Abraham, 223
Ross, James Arthur, 662
Ross, William, 1553
Rossi, Lieut. A., 1019
Rousseau, Capt. Zotique, 2201
Rowan, Walter Hawthorne, 662
Rowe, Darius, 138
Rowley, Daniel Grant, 2060
Roy, Pramath Nath., 1191
Ruffer, Sir. A., 1642
Rummel, Edwin G., 1991
Russell, John McDonald, 1020
Russell, Linus E., 581
Russell, Thomas P., 1372
Rutledge, James C., 56
Saffin, Wilson, 749
Sahler, Charles Oliver, 1191
Salamon, Jacob, 929
Salerno, Lieut. L., 1019
Salles, S., 134
Salmon, Harry Albert, 1191
Sangrador, D., 1721
Sanns, Harry Valentine, 1636
Santa Severina, Lieut. E. de G. di, 1370
Sarazin, 134
Sargeant, Frank Loring, 2059
Sartorio, Lieut. P., 1019
Satterlee, Francis LeRoy, 1899
Saucerman, John Wesley, 305
Saunders, George L., 1724
Saunders, Walter J., 399
Sawyer, Thomas E., 57
Sawyer, Waldo Fitch, 2060
Scales, Harvey W., 1553
Schaefer, Rudolph F., 2059
Schaub, Leopold Johan, 929
Schlitz, Nicholas Cornelius, 223
Schmalling, Hannah Leah Nichols, 399
Schmoeller, William, 304
Schnecker, William Augustus Muhlenberg, 1190
Scholl, Charles Edward, 57
Schollcraft, John L., 1636
Schuhart, Quimbert C., 1459
Scott, S. Walker, 484
Scott, Will Orvis, 1459
Scott, William R., 1553
Scudamore, Lieut. L. C., 134
Semans, William Merrick, 2137
Sellards, Ernest M., 662
Senour, Ulysses G., 304
Sewell, Capt. H. K., 1019
Seymour, Christopher, 138
Shank, John Raymond, 1020
Shannon, James E., 2136
Sharbough, William J., 1020
Sharman, Jack R., 1814
Sharp, Edgar Barzillai, 224
Sharp, Edwin, 1287
Shaw, Thomas, 224
Shaw, William Conner, 1190
Shay, Elbridge A., 1636
Shear, Roland C., 2059
Shegog, Capt. R. W., 1370
Sheldon, Melvin, 1459
Sheppard, F. N., 1724
Sherick, Abram Leander, 2059
Sherman, Harris Gray, 1723
Shreves, Thomas Jefferson, 1101
Sias, William Henry Harrison, 137
Sidney, Austin Wilbur, 223
Silkman, Warren D., 1101
Simison, John Frank, 1553
Sims, J. Morgan, 840
Skinner, Barton Dwight, 56
Slayton, O. H. P., 138
Sloan, John H., 1991
Sloss, Edward Baxter, 138
Smellie, Hugh McMinn, 1897
Smith, Albert Wellington, 484
Smith, Dwight Gordon, 662
Smith, Emmet Lincoln, 1814
Smith, Frederick Walter, 662
Smith, James Edward, 929
Smith, Nelson Mowton, 138
Smith, Capt. W. A., 134
Smith, William Alder, 2137
Sneath, Capt. W. A., 483
Snodgrass, Jesse, 2201
Snyder, Benjamin F., 137
Snyder, Charles Watson, 1991
Snyder, Darlington J., 399
Snyder, J. F., 1191
Snyder, Marion D., 662
Sobey, Richard, 749
Somes, Joseph Francis, 1459
Sonnino, Lieut.-Col. D., 1370
Soteriades, Nicholas, 1373
Southworth, James Walsh, 2137
Spalding, Stephen Cassin, 1553
Spangler, Benjamin Franklin, 1372
Spear, David Adams, 2058
Spelman, James Francis, 223
Spencer, John F., 1553
Spilman, William Henry, 1814
Springer, Francis L., 1723
Stahl, A., 1455
Stahl, Edward L., 1814
Stahle, Robert S., 1814
Stanculeanu, G., 660
Staral, John A., 1190
Stark, Benjamin Franklin, 1191
Stark, John Raymond, 1460
Steele, J. P., 660
Stein, Joseph, 138
Steinbrecher, Albert H., 2059
Steltz, Peter Harry, 56
Stempel, Guido L., 2201
Stern, David Henry, 749
Stevens, Martha A., 1814
Stevens, William Caldwell, 2202
Stevenson, Alexander T., 1814
Stevenson, Gilmore Robert, 2137
Stewart, Andrew, 929
Stewart, Earl Micaiah, 1459
Stewart, Malcolm, 1900,
Stillings, Ferdinand Anson, 137
Stimson, Lewis Atterbury, 1020
St. John, David, 1101
Stolp, Byron C., 1635
Stork, John Wesley, 1459
Story, John Wesley, Jr., 1814
Stout, Hiram Beauregard, 2137
Stratton, Howard Robertson, 138
Strong, Frederick C., 581
Stuckey, J. George, 1991
Stutzke, Frank Valentine, 138
Sullivan, John Jay, 2137
Summers, Daniel B., 2137
Summers, James A., 1724
Summer, James B., 841
Sutherland, William B., 1900
Sutherlin, William Keener, 1899
Sutton, George W., 137
Sutton, Henry Everett, 1635
Sweeney, Isaac F., 305
Sweltzer, Louis Sanford, 57
Tabler, Jasper N., 1814
Tabtor, Hiram M., 1991
Taborda, H., 746
Tallman, William Lewis, 1636
Tamborelli, G., 134

Tamponi, Capt. A. C., 1019
Tandy, Leonidas W., 581
Tardif, Dr., 1099
Tarter, Albert Preston, 1459
Taylor, Capt. A. S., 1370
Taylor, Charles Edward Stuart, 1814
Taylor, David M., 622
Taylor, Capt. H. Y. C., 1019
Taylor, James, 1814
Taylor, Philip Kittredge, 929
Teal, George Abraham, 224
Tearney, Joseph Francis, 137
Tennent, Gilbert, 137
Terrill, Franklin Clark, 2138
Terrell, William M., 223
Thomas, James A., 305
Thompson, Berzelius D. W., 1553
Thompson, Charles Henry, 840
Thompson, William Scott, 1459
Thompson, Archibald G., 1635
Thorne, W. B., 134
Tilton, Lieut. Nehmiah Fay, 841
Tischbein, Frederick J., 1159
Tobey, Samuel D., 304
Todd, Glenn Lazarus, 1459
Tracy, Andrew W., 2201
Traill, Capt. A., 1019
Triplet, Charles E., 1191
Trotter, Dennie Daniel, 1724
Truckenmiller, William Urias, 1460
Tubb, James M., 224
Tucker, George Wilbur, 1814
Tudor, Mary Starr, 841
Turk, Fred Vandegraff, 1373
Turner, Christopher, 304
Turner, Wesley 137
Turrill, George Edward, 1900
Tweedy, Major R. C., 660
Tygret, Volney, E., 57
Ullman, C. M., 483
Underwood, A. R., 1550
Underwood, Howard A., 2060
Updegraff, Edward Watson, 929
Ustick, Harlan Page, 1373
Vallé, Jules F., 2059
Vance, James Ward, 1814
Ven den Burg, William H., 840
Van Horn, Abner Osborn, 1191
Van Pelt, Joseph King Turner, 929
Van Tries, Thomas C., 1724
Van Zile, Benjamin Sturgis, 1191
Vaughn, John David, 138
Vaughan, Lieut. R. W., 134
Veach, George W., 305
Veazie, Albert Valentine, 224
Velt, J., 838
Viana, Lieut.-Col. F. E., 1721
Vinyard, Guy Stewart, 399
von Frish, A., 483
Wackenhuth, Charles Franklin, 1190
Waddington, Benjamin Archer, 840
Wade, John H., 1814
Wagner, Lieut. Matthias Miller, 1190
Waite, Henry Edward, 484
Waldorf, Frank Leon, 748
Walker, Ferre Joel, 399
Walker, Henry Freeman, 748
Walker, Hosea Ellsworth, 743
Walker, Jackson, 2137
Walker, Thacker V., 137
Walker, Thomas Dyson, 484
Walkley, *Act. Asst. Surg. Wyllys Seaman*, 929
Wall, Thomas McKaig, 2060
Wallace, Jason T., 1900
Wallace, Robert F., 223
Walter, Joseph B., 841
Walton, George Edward, 304
Ward, Albert Leroy, 2202
Ward, Surg. E. C., 1370
Ward, James G., 138
Ward, Richard Halsted, 1553
Warner, Homer H., 662
Watson, Claude, 1900
Watson, John William, 223
Watt, Henry Chorley, 2138
Wattles, Jervis H., 57
Watts, Robert, 1553
Weaver, Harry Vernon, 1373
Weaver, Capt. J. J., 134
Webb, Jesse Barr, 749
Webb, William H., 1814
Webster, John C., 1724
Weed, Francis Tudor, 662
Weed, Odillion B., 399
Weil, Major Richard, 1885, 1899
Weitzman, John J., 1191
Welch, Dudley W., 1814
Weller, Capt. C., 1019
Wells, Abner Toothaker, 1191
Wells, Brooks Hughes, 137
Wells, George M., 1287
Wells, Theodore H., 57
Wells, William Lowndes, 841
Wharton, J. T., 929
Wheeler, Amos Alexander, 1101
White, George W., 1991
White, R. H., 2138
Whitbeck, Anseel McKinstry, 2202
Whitham, Charles E., 1373
Whitman, Charles Henry, 56
Whitmore, Warren Lawton, 662
Whitner, Hiram K., 138
Wiesen, Marx Stecher 662
Wilber, Albert Mortimer, 137
Wiley, Zephaniah Kerr, 2059
Wilhelm, Julius M., 1900
Wilkins, *John Henry*, 1020
Williams, Evan, 138
Williams, Harry Eldridge, 57
Williams, Surg. Richard Bland, 2136
Williamson, James Louis, 399
Williford, J. H., 1190
Wills, William H., 2137
Wilson, J. Abraham, 2138
Wilson, Major E. F. B., 1019
Wilson, George Edward, 484
Wilson, Capt. W. S., 1370
Winchester, Frank M., 1900
Winternitz, Louis Charles, 1900
Wishard, Samuel G., 1190
Withers, M. L., 1991
Woelffel, George August, 1020
Wohlar, Paul Reinhardt, 138
Womack, John Hobson, 662
Wood, Fred Greene, 137
Wood, James Walton, 304
Wood, John H., 1636
Woodburn, John M., 2137
Woodhouse, Capt. B., 1370
Woods, William Stone, 304
Woolley, *Basil M.*, 1991
Worrall, Lieut. Benjamin W. J., 1190
Wortman, Albert Monroe, 1991
Worth, Richard Floyd, 399
Wouters, John Francis, 1372
Wright, William Moore, 145
Wullschleger, A. W. H., 2138
Wullyamoz, F., 1099
Wurtz, Jacob David, 137
Wyland, Jonathan Milton, 2059
Yeilding, Arthur Tallas, 1101
Yoke, Charles, 484
Young, Charles, 399
Young, Downing Howard, 1287
Young, Edmund Rufus, 138
Young, Michael Arthur, 305
Yuill, William Robert, 2060
Zagrewski, Dr., 1099
Zels, Herschel J., 1814
Zeller, B. F., 2202
Zornow, Frank Henry Columbus, 1900
Zucchetti, Capt. C., 1370

E

EAR: See also Special Structures of Ear
EAR and aviation, [Jones] *1607
  device to protect, against shock from explosions, [Verain & Verain] (15) 1115
  diseases in Swiss army, [Schlittler] (70) 413
  during war, [Brunetti] (79) 1743
  eye movements induced by tests applied to, [Stähli] (103) 676
  frostbite as predisposing factor in cancer of, [Sutton] *2171
  injuries, Surgeon-General's program for management of, 917
  passages, closure of outer, traumatic, [Kan] (78) 598
  suppurative disease of middle, aural vertigo in, [Kerrison] *807
ECHINOCOCCUS cyst in liver perforating into pleura, [Allende & Roaso] (83) 1120
  diseases of brain, [Peters] (76) 838
ECLAMPSIA and lumbar puncture, [Snyder] *1074
  and toxemia, treatment of, [Davis] 1466—ab
  avoidance of shock and trauma in, [Cragin] 144—ab, (1) 669
  celiohysterectomy for placenta praevia and, [Taulbee] 2144—ab
  conservative treatment of, [McPherson] 1467—ab
  rarity of, in Germany at present, 860—ab
ECTASIA, *peripheral, transparent,* of cornea, case of, [Marquez] (100) 415
ECTROPION, *cicatricial, treatment* of, [Ramirez] (79) 2157
ECZEMA, [Bloch] (61) 1743
EDEBOHLS' operation in *nephritis* in children, [Morse] *525
EDEMA, elephantiasic, after war wounds, [Mériel] (22) 594
  in chronic parenchymatous nephritis, causation and alleviation, [Epstein] (2) 2068
  pulmonary, acute, [Kruglevsky] (110) 2007
  pulmonary, in pneumonia, treatment of, [Bastedo] *800
  salicyl, [Hanzlik & others] (29) 1196
EDUCATION: See also Schools; University
EDUCATION, graduate, in clinical branches, and Minnesota experiment, [Lyon] *1307
  medical, college notes, 544
  medical, *for* negroes, 2133
  medical, in United States, 533
  medical, provost-marshal's conception of, 650—E
  medical, 17th annual report, 565—E
  medical, standards of A. M. A. Council on Medical Education, 546
  preliminary to medical study, 516
  premedical, report on, 569—E
EDWARD'S Infant Syrup, 139—P
EGG and toast given to typhoid patient, 1108—Ml
  raw, objections to, in diet, 1006—E, [Rosewater] 1371—C
  raw, use of, in practical dietetics, [Bateman] (7) 67
ELBOW joint, ankylosis of, method of arthroplasty in, [McKenna] *891
  joint, gunshot wounds, treatment of, plea for primary excision in, [Moulin] (8) 2002
ELECTRIC hypothesis of exhaustion, [Crile] (26) 755
  shock, polyneuritis following, [Tornaghi] (79) 323
ELECTROCARDIOGRAM, changes in, associated with myocardial involvement, [Oppenheimer & Rothschild] *129
  error in, arising in application of electrodes, [Pardee] (19) 848
  myocarditis localized in interventricular septum with peculiar anomalies in, [Fridericia & Møller] (152) 680
  of frog heart under influences of antiarin, [Rümke] (114) 416
  physiologic bases for, and clinical importance, [Gubergritz] (146) 679
  sign of myocardial change, [Wells & Goodall] (8) 1201
ELECTROLYSIS, disinfection of wounds by, of circulating therapeutic fluid under continuous aspiration, [Chick & Miniot] (54) 241
ELECTROVIBRATOR in treatment of digestive tract, [Maragliano] (114) 677
ELEPHANTIASIS after war wounds, [Mériel] (22) 594
EMANUEL-CUTTING mastiche test in examining spinal fluid from *psychopathic subjects*, [Smith & Lowrey] (29) 1649
EMBOLISM and thrombosis of mesenteric vessels, [Hedlund] (124) 2008
  fat, experimental, low blood pressures associated with peptone shock and, [Simonds] *883
  fat, pulmonary, frequent cause of postoperative surgical shock, [Bissell] (112) 241
  gas, [von Adelung] *1522
  pulmonary, experimental study of, [Mann] (57) 1110
EMETIN and arsenic in amebic dysentery, [Aimé] (34) 1116
  bismuth iodid, detection and treatment of amebic dysentery carriers with, among cases of irritable heart, [Jepps & Meakins] (14) 2151
  bismuth iodid in amebic dysentery, [Waddell & others] (57) 674, [Leboeuf] (100) 676
  bismuth iodid in entameba histolytica carriers, [Lillie & Shepheard] (17) 1383
  diarrhea, 916—E
  diarrhea, clinical and experimental, [Kilgore & Liu] (21) 848
  hydrochlorid, intravenous administration of, [Larimore] (68) 756
  in amebic liver abscess, [Brocq & Augé] (59) 1037
  in liver abscess, [Delille & others] *(26) 1302*
  toxicity of, [Guglielmetti] (108) 498
EMOTIONS, effect of, on catalase content of liver, [Burge & Burge] (9) 589
  effect of, on catalase in blood, [Burge] (3) 1735
EMPLOYEE, authority to treat, beyond *30 day period*, 2065—Ml
  injured, employer's liability for services rendered to, 1195—Ml
  injured, *secretary of corporation* contracting treatment of, 309—Ml
  subordinate, of railway, employment of physician by, *488*—Ml
EMPLOYER'S *liability for services* rendered to injured employee, 1195—Ml
  liability of, *for surgical and hospital services* after 30 day period, 2142—Ml
EMPYEMA of thorax, [Lilienthal] (26) 1109
ENDARTERITIS, pulmonary, plus subacute endocarditis with chronic heart disease, [Lutembacher] (9) 1115
ENDOCARDITIS, acute tuberculous parietal, [Stark] (73) 315
  malignant, of slow course, [Debré] (50) 2154
ENDOCRINE Glands: See Secretion, Internal, Glands of
ENDOTHELIOMA of kidney, [Funke] (26) 489
  of pleura, primary, [Kelity] (12) 67
ENTAMEBA buccalis, reactions and *food taking*, [Nowlin] (56) 1650
  histolytica carriers, emetin bismuth iodid in, [Lillie & Shepheard] (17) 1383
  histolytica carriers, persons never out of Great Britain as, [Yorke *& others*] (6) 672
ENTERITIS, chronic, and military service, [Laubry & Marre] (45) *1833*
  war, [Mollière] (36) 1302
ENTEROSTOMY and use of omentum *in prevention* and healing of fistula, [Mayo] (26) 1998
ENURESIS: See Urine, Incontinence of
EOSINOPHILIA, 1104
EPIDERMOLYSIS bullosa, considerations on, [Ravogli] *256
EPIDERMOPHYTON infection of scalp, case of, [Weiss] *1059
EPIDIDYMITIS, diathermy for gonococcus orchitis and, [Canovas] (131) 678
EPILEPSY, anesthesia in surgery on epileptics and control of status epilepticus, [Collier] 1735—ab
  Bárány's sign in, and in schoolchildren, [Tracy] (87) 70
  body types in, [Hodskins] (34) 407
  dilatation of lateral ventricles as common brain lesion in, [Thom] (23) 2209
  dosage of bromide in melancholia and, [Bernoulli] (67) 1037
  examining iris with strong light brings on attack, [Manthos] (83) 763
  fraudulently concealed, annulment of marriage for, 752—Ml
  intestinal adhesions and peritoneal bands in, [Caro] (31) 849
  persistent treatment of, [Pershing] *869
  status lymphaticus in, roentgen ray in, [Symmers] 2204—C
  suspension of pulse and respiration at onset of seizures in man with complete heart block, [Kouwenaar] (96) 1208
EPINEPHRIN, action *of, on blood*, [Menten] (9) 1294
  action of, on inhibiting flow of pancreatic secretion, [Mann & McLachlin] (74) 1738
  effect of, on distribution of blood, [Gunning] (12) 1294
  effect of, on muscular fatigue, [Gruber] (16) 238
  effect of stimulation of sensory nerves on rate of liberation of, from suprarenals, [Stewart & Rogoff] (32) 1908
  hyperglycemia and decreased alkali reserve of blood, [Peters & Geyelin] (70) 850
  in Addison's disease, [Burridge] (22) 72, [Nolf & Fredericq] (333) 1475
  in neosalvarsan exanthem, [Nägeli] (70) 1743
  influence of asphyxia on rate of liberation from suprarenals, [Stewart & Rogoff] (85) 315
  is it indispensible for the organism? 40—E
  outpouring of, during conditions of low blood pressure, 729—E
  quantitative experiments or liberation of, from suprarenals *after section of nerves*, with reference to indispensability of epinephrin to organism, [Stewart & Rogoff] (7) 1294
  relation of rate of spontaneous liberation of, to rate of blood flow through suprarenals, [Sewart & *Rogoff] (7) 1294*

EPINEPHRIN, relation of spinal cord to spontaneous liberation of, from suprarenals, [Stewart & Rogoff] (31) 1909
  secretion of suprarenals, and experimental hyperglycemias, [Stewart & Rogoff] (12) 2147
  suicide with, attempt at, [Grasset] (60) 1742
ERGOTOXIN, influence of, on body temperature, [Githens] (27) 2069
ERYSIPELAS, abortive treatment of, [Capitan] (36) 244
  diplococcus, with septicemia, [Connio] (62) 948
  mortality from, in relation to location and age, [Ivanoff] (106) 415
  patients, clean and comfortable method of treating, [Milliken] (7) 847
ERYTHEMA after salvarsan and its substitutes, [Milian] (26) 1116
  group, visceral disturbances in patients with cutaneous lesions of, [Christian] *325
  malarial, [de Brun] (25) 1116
  nodosum, heliotherapy for, [Cecicas] (75) 598
ERYTHROCYTES: See Blood Corpuscles, Red
ESKAY'S Neuro Phosphates, 1102—P
ESOPHAGUS, dilatation of, huge, [Friedenwald & others] (136) 1113
  diverticulum, frothy secretion in pyriform sinus sign of, [Oppikofer] (68) 1387
  diverticulum plus dilatation, [Leffler] (82) 1573
  plastic operations on, [Razzaboni] (68) 2156
  roentgen diagnosis of lesions, [Matlack] 1561—ab
  stenosis of, cicatricial, dilatation with metallic mercury and catheterization under screen control for, [Kummer & Moppert] (46) 1117
  stenosis of, inflammatory, in cardial region, etiology and different forms of, [Guisez] (57) 412
  webs and pouches of, diagnosis and treatment, [Mosher] (110) 593
  wounds of larynx, trachea and, in war, [Lannois & others] (22) 317
ETHER administration, difficulties of, [Hoag] 1561—ab
  and oil, general anesthesia by rectum, [Protopopoff & others] (75) 857
  anesthesia, 302
  anesthesia, effects of, and of visceral trauma as shown by vasomotor and blood pressure changes, [Muns] 404—ab
  anesthesia in tuberculosis, [Savage] (116) 152
  inhalation in mutism, dysphonia and tachypnea of hysteric origin, [Trocello] (81) 1039
  rectal injection of, general anesthesia by, [Montoya] (111) 499
  vapor, valve to deliver air and, in any proportion, [Gates] (58) 239
  vapor, vascular reflexes with various tensions of, [Mann] 405—ab
ETHYL alcohol, action of, [Becker] (66) 942
ETHYLHYDROCUPREIN, amblyopia due to, [Schiøtz] (140) 500
  injurious action of, on organ of vision, [van der Hoeve & Mansholt] (76) 598
EUCAIN, action of, on bladder, [Waddell] (73) 1738
EUGLOBULIN and thromboplastin in tuberculous hemoptysis, [Mannheimer & Wang] (7) 1826
EUSOL: See Acid, Hypochlorous
EXHAUSTION, electric hypothesis of, [Crile] (26) 755
EXOSTOSES, multiple, hereditary, [Cowie] 235—ab
  or gonorrheal spurs of os calsis, [Merritt] *118
EXPERIMENT in medicine, method of, 1610—E
EXPERT Testimony: See Testimony, Expert
EXPERTS, cannot pay, for examining defendants, 2206—Ml
EXPLOSIONS, device to protect ears from shock from, [Verain & Verain] (15) 1115
EXTRACT, Organ: See also Organotherapy
  Pituitary: See Pituitary Extract
EXTREMITIES: See also Arm; Leg
EXTREMITIES, fracture of, projectile, pathology of, [Martin & Petrie] (5) 2151
  reflex contractures of, stubborn, surgical treatment for, 1990
EYE: See also Special Structures of Eye
EYE and endocrine organs, [Zentmayer] *1
  and heart and abdominocardiac reflexes, [Pron] (53) 1036
  and heart reflex, [Laubry & Harvier] (68) 496, [Fumarola & Mingazzini] (66) 1834
  and heart reflex in bradycardia, [Mougeot] (33) 1116
  and heart reflex in wounded, [Gautrelet] (43) 1204
  and heart reflex, paradoxic, [Cantelli] (67) 75
  artificial, better stumps for, [Terrien] (38) 1914
  complications of scarlet fever, [di Giuseppi] (74) 1038
  crystalline deposits in, [Lewis] *12
  ground in fracture of skull, [Kearney] *1399
  in arsenic poisoning, 935
  infections, metastatic, from primary dental foci, frequency of, [Levy & others] *194
  injuries and diseases of, common, recognition and treatment of, [Motte] 1733—ab
  injuries in war, [di Giuseppe] (51) 1570
  injuries, Surgeon-General's program for management of, 917
  intra-ocular arterial pressure, [Baillart] (70) 674
  movements induced by tests applied to ears, [Stähli] (103) 676
  moving pictures and, [Bahn] (107) 1381
  optochin and injurious action on, [van der Hoeve & Mansholt] (76) 598
  tuberculous, local application of tuberculin in, [Ellis & Gay] (21) 757
  typhoid vaccination and, [de Lapersonne] (30) 2152
EYEBALL, operations on, device to immobilize head and eyelids during, [Crossley] *2103
  rebellious hiccup arrested by compression of, [Aquino] (104) 159
  wounds of, [Bourdier] (67) 413
EYELID, chalazion of, painless and bloodless removal without lid clamp, [Bernstein] *532
  device to immobilize head and, during operations on eyeballs, [Crossley] *2103

F

FACE, defects of skull and, "soup bone" implant for, [Babcock] *352
  paralysis, [Pauchet & Labouré] (61) 1656
  paralysis of, following Pasteur treatment, [Levy] *1873
  paralysis, salicylic ionic medication for, [Fiorini] (55) 760
  rebuilding, [Piétri] (98) 676
  wounds, masks for, [Wood] (22) 410
  wounds, muscle plastic operations after, [Nikolsky] (86) 763
FALLOPIAN TUBES, diseases of ovaries or, complicating pregnancy, [Brindeau] (31) 243
  double suppurative disease of, preservation of menstrual function in chronic metritis and, [Polak] *1938
  left, and intestinal stasis, [Stewart] 1378—ab
  sarcoma of, [Bello & Castañeda] (82) 247
  suppuration in ovaries and, vaginal operation for, [Chueco] (74) 762
FASTING and water cure, death from, 1645—Ml
FAT absorption and pancreas, 384—E
  edible, problems of, 1876—E
  embolism, experimental, low blood pressures associated with peptone shock and, [Simonds] *883
  embolism, pulmonary, frequent cause of postoperative surgical shock, [Bissell] (112) 241
  incapacity in infancy and childhood, familial tendency to, [Southworth] *516
  splitting ferment of stomach, new evidence regarding, 2119—E
FATIGUE toxin, is there a? 1177—E
FECES and bile of cholera cases and carriers, bacteriologic investigation of, [Crowell & Johnston] (95) 1565
  extreme impaction, report of case, [Watson] *283
  helminths in, to facilitate search for, [Carles & Barthélemy] (39) 1654
  occult blood in, to facilitate detection of, [Rassers] (149) 680
  occult blood in, with pulmonary tuberculosis, [Lange] (89) 1574
  with insufficiency of stomach, [Goiffon] (31) 1568
FEEBLEMINDNESS, New York Committee on, report of, 1905—ME
FEEDING: See Diet; Nutrition
FEE-SPLITTING in Toronto, 1719
FEET: See Foot
FEMUR fractures, complicated, treatment in surgical formations at front, 53
  fractures, gunshot, [Metz] (96) 1480
  fractures, gunshot, early treatment of, [Page & Le Mesurier] (6) 852
  fractures of neck of, old ununited, transplantation of head of femur to trochanter for, [Brackett & New] (38) 1197
  factures of neck of, ununited, nailing operation for, [Swett] (24) 312
  fractures, ten commandments of, [Schiassi] (61) 1834
  fractures, traumatic rhabdomyosarcoma following, [Muller] (60) 941
  fractures, treatment of, [Judet] (28) 594, [Schiassi] (71) 1916
FENGER MEMORIAL FUND, 2133
FERMENT action, importance of superficial tension of medium in catalysis and, [Groll] (99) 2158
  proteolytic, for alien proteins, [Albanese] (99) 498
FERMENTATION tube, Durham, improved modification of, [Graves] *2102
FERMI'S modification of Pasteur treatment of rabies, 515—ab
FERRIVINE refused recognition by Council, 841—P
FETUS, age of, diagnosis of, by roentgenograms, [Hess] (1) 2208
  influence of maternal oral sepsis on, [Pierrepont] (81) 154
  sex hormones in life of, 1878—E
  smallpox in utero, [Rothwell] (123) 1298
  some causes of death of, [Pfeiffer] (11) 237
FEVER center, effect of antipyretics on, [Lüthy] (53) 2155
  hunger and appetites in, 1614—E
  Puerperal: See Puerperal Infection
  trench, [Mandel] *725
  trench, associated with presence of hemogregarine, [Dimond] (21) 1475
FIBRILLATION, Auricular: See Heart
FIBRIN, alleged formation of connective tissue fibers from, 1696—E
FIBROID, radium in uterine hemorrhage and, [Miller] 144—ab
  uterine, roentgenotherapy successful in, without affecting ovaries, [Pfahler & McGlinn] (5) 669
FIELD sanitary orders, [McCullough] *1345
FILARIASIS, report of case, and periodicity of microfilaria nocturna, [Yorke & Blacklock] (1) 1299
FINGERS, contracture of, with traumatic injury of nerves of arm, [Claude & Dumas] (45) 1204
FISH day, every day is, 1007—E
FISTULA, anal and rectal, [Pennington] *1501
  in thorax, rebellious, [Bérard & Dunet] (43) 1915
  persisting, with war wounds of bones, treatment of, [Dujarier & Desjardins] (46) 156
  urethrorectal, operative treatment of, [Young & Stone] (57) 491
  vesicovaginal, inaccessible, operative treatment of, [Ward] (104) 593
  vesicovaginal, substitution of anal for vesical sphincter in inoperable cases, [Peterson] (108) 1566
FLAGELLATE infection of intestines, irrigation method in, [McNeil] (106) 408
FLANDERS' FIELDS, [McCrae] 1177, 1437
FLAT-FOOT: See Talipes
FLAVINE, 54
FLAVINE, germicidal power of, [Hewlett] (23) 1567
  in recently inflicted war wounds, [Drummond & McNee] (17) 1913
  physiologic and antiseptic action of, [Fleming] (15) 1202
FLIES and epidemiology of acute poliomyelitis, [Noguchi & Kuda] (59) 239
  influence of colored light on, [Galaine & Houlbert] (43) 1476
  studies on common house fly, (musca domestica), [Scott] (109, 110) 1199
FLORIDA medical news, 480, 1451
  state board June examination. 844
FLUID, diluting, for counting blood corpuscles, [Diner] *1421
  interchange of, between blood and tissue spaces, factors influencing, [Scott & others] (4, 5) 1735
FLUOROSCOPY: See Roentgenoscopy
FLYING surgical units, [Plisson & Quénu] (30) 1914
FOOD and dietaries, [Hindhede] (101) 1208
  bacteriology of, [Slack, Bolling & Jordan] 60—C
  bureau, central, establishment of, in France, 2057
  conservation, 128, 916—E
  conservation, clean plate and cutting bread on table, 915—E
  control in England, 580, 1099, 1721, 1811
  dehydration of, 1107—ME
  division in Surgeon-General's office, 1181
  dried, in war time, 731—E
  "eat wisely," 125—E
  for children from 2 to 7, 822—T
  handlers, card rating system for, 769—ab
  handlers, health of, 1701—ab
  oxalic acid in, 1699—E
  poisoning, with reference to botulism, 472—E
  preservatives in, danger from, [Satre] (44) 1476
  prices, increase of over 104 per cent. in England, 483
  rations, new, in England, 2057
  requirement in infancy, 1175—E
  requirements of children, [Macgowan] 61—C
  utilization, [Zentmire & Fowler] (46) 1649
  values, helps to scoffer at, 1353—E
  war-time, dangers and disadvantages of, 122—E
  wild, value of, 396
FOOT, chilling of, predisposing to tetanus, 2134
  conditions, treatment of, [Lowman] *16
  injuries to hands and, from cold, [Cottet] (62) 1656
  normal and pathologic anatomy of bony framework with regard to traumatic lesions, [Delitala] (62) 321
  supervising use of, after recovery from war wounds, [Imbert] (46) 759
  trench, [Tassone] (47) 596
  trench, treatment by Bier's method of passive hyperemia, [Turner] (16) 1913
  wounds of ankle and, in war, [Quénu] (55) 321, (61) 1037
FOREARM, fracture of shafts of both bones of, [Whipple & St. John] (119) 241
  inability to rotate, after fracture, [Masomteil] (60) 1037
FOREIGN BODIES, anatomic localization of, by orthoradioscopy, [Coste] (77) 675
  compass localizer for exact depth of projectiles, 1990
  damage for failure to remove gauze and portions of tube, 587—Ml
  device for roentgenographic localization of bullets and other foreign bodies in wounds, [Tousey] *1521
  extraction of projectile in pelvis through posterior wall, [Auvray] (97) 676
  immediate extraction of projectiles, [Fiolle] (58) 1477
  in gunshot wounds, prompt removal of, [Speed] *1079
  in stomach, [Eliason] *2106
  in thorax and pelvis, tardy extraction of, [Charbonnel] (37) 854
  localization of, [Johnston] 1902—C
  open safety pin in infant's stomach and duodenum, [Perkins] *2104

- FOREIGN BODIES, shrapnel balls, roentgenographic characteristics compared with bullets and other foreign bodies, [Pirie] (40) 1296
- FOREIGN MEDICAL NEWS, 133, 300, 395, 482, 660, 746, 838, 926, 1019, 1099, 1188, 1286, 1370, 1455, 1550, 1720, 1811, 1897, 1989, 2056
- FORMULA, open, and J. C. Ayer Company, 1551—P
- FORT Benjamin Harrison, experiences of rookie on first day at, 830
  - Benjamin Harrison, Medical Officers' Training Camp at, to be discontinued, 1702
  - Benjamin Harrison, military surgeons and civilian guests to hold special meeting, 1013
  - Benjamin Harrison, news of, 209, 919, 1012, 1087, 1440, 1532, 1616, 1703
  - Benjamin Harrison, two days' bivouac march at, 1179
  - Oglethorpe, news of, 468, 851, 1012, 1274, 1703
  - Riley, 902, 919, 1012, 1532, 1704, 1883, 1977, 2122
- FOUNDLING asylums, federation of, in Italy, 2056
- FOUNTAINS, drinking, sanitary and unsanitary, 1267—E
- FOURTH DISEASE, [Lesage] (13) 759
- FRACTURE: See also under names of bones
- FRACTURES, [Allen] *1143
  - as cause for rejection, 127
  - below knee, [Troell] (84) 858
  - Colles', [Parker] 1824—ab
  - forearm, shafts of both bones, [Whipple & St. John] (119) 241
  - gunshot, bearing of spread of infection in open bone on treatment of, [Martin & Petrie] (8) 1740
  - gunshot, of shaft of humerus, [Eastman] *251
  - gunshot, of thigh, early treatment of, [Page & Le Mesurier] (6) 852
  - inability to rotate forearm after, [Masmonteil] (60) 1037
  - malpractice in treatment of, insufficient evidence of, 402—Ml
  - marching, report of 6 cases, [Pirie] (52) 494
  - markings of nutrient canals of ilium mistaken for, [Smith-Shand] (7) 2151
  - operative treatment of, and method of arthroplasty in ankylosis of elbow joint, [McKenna] *891
  - projectile, of extremities, pathology of, [Martin & Petrie] (5) 2151
  - reduction of, under screen control, [Masmonteil] (43) 74
  - reduction with simple traction apparatus, [Soutter] *2035
  - refusing to submit to reasonable treatment, 1822—Ml
  - supination by plaster, method of, [Verrall] (21) 853
  - thigh, complicated, treatment in surgical formations at front, 53
  - ununited, of neck of femur, nailing operation in, [Swett] (24) 312
  - war, *treatment of*, 1722
  - war, with displacement of bones, [Delorme] (24) 2152
- FRAMINGHAM health and tuberculosis demonstration, [Armstrong] *1051
- FRANCE, depopulation of, [Richet & others] (41) 156
  - *Medical Reserve Corps in, letter* from member of, 2046
  - medical service of British expeditionary forces in, Lord Charnwood's report on criticism of, 737
- FREEZING: See Frost-Bite
- FRENCH and Belgian physicians, appeal for aid for, [Keen] 665—C, 829—E, [Keen] 1728—C, [Jacobs] 2063—C
  - Guide to, 486
  - medical students and war, 1438
  - signs and maps and highways, [Kelley] 1818—C
- FROSTBITE as predisposing factor in cancer of ear, [Sutton] *2171
  - of feet, [Chiasserini & Cavina] (62) 75
  - paraffin film treatment of wounds and, [Masnata & Matronola] (46) 596
  - paraffin-tar mixture for burns and, [Paraspori] (64) 761
- FRUIT acids, 1432—E
  - desiccation of vegetables and, in home, 731—E
- FRUIT ingestion and cutaneous disease, [Davidson] (25) 1827
  - juices, relative value of, 1700—E
- FRUITATIVES, 582—P
- FULGURATION *in urethral caruncles*, [Ballenger & Elder] *1120
- FULL sacrifice, 1355, [Leavitt] 1463—C
- FUMIGATION, ventilation of shipholds after, 1603—ab
- FURUNCLES, treatment of, [Oyarzabal] (130) 678
- FURUNCULOSIS, tin in, [Bruhl & Michoux] (32) 1653

G

- GAIT, disturbance in, with paralysis of external popliteal nerve and device for correction, [Privat & Belot] (43) 320
- GALLBLADDER, anastomosis between stomach and, in treatment of gastric and duodenal ulcers, [Escudero & Finochietto] (70) 76
  - band, [James] *283
  - calculi and indications for operative treatment, [Wolff] (99) 248
  - calculi, cholecystitis with and without, with classification of symptoms, [Hendon] (141) 1113
  - calculi, etiology of, on basis of chemical composition, [Rosenbloom] *1765
  - calculi, recurrences of, [Deaver] (106) 1566
  - calculi with menstrual hypercholesterolemia, [Goñalons] (90) 1120
  - Disease: See also Bile Tract
  - disease, diagnosis of, [Kimberlin] 1468—ab, [Nickell] 2067—ab
  - diseases, medical treatment of, [Sowder] 1468—ab
  - gangrene of, recovery, [Cignozzi] (73) 246
  - surgery, cholecystectomy in avoidance of adhesions in, [Willis] (24) 1736
  - trouble complicating disease of internal genitals, [Gastens] 1466—ab
- GALL-DUCTS: See Bile-Ducts
- GALLSTONES: See Gallbladder Calculus
- GALYL and quinin in subtertian cerebral malaria, [Falconer & Anderson] (21) 1567
- GANGRENE, diabetic, [Jopson & Goodman] (160) 492
  - gas, [Vincent & Leclerc] (83) 675, [Charlier] (99) 676
  - gas, and phlegmons, [Nacciarone] (64) 1118
  - gas, antitoxin for, 41—E
  - gas, early, resection of infected muscles in, [Frankau & others] (6) 153
  - gas, spread of, into living muscles, [McNee & Dunn] (5) 153
  - of gallbladder, recovery, [Cignozzi] (73) 246
  - of thumb after application of compound solution of cresol, [von Stapelmohr] (100) 248
  - peripheral, due to thrombo-angeitis obliterans, treatment with reference to femoral vein ligation and sodium citrate injections in, [Ginsburg] (10) 1029
  - war wounds which predispose to, on account of injury to vessels, [Baggio] (76) 157
- GARBAGE, 1640—ab
  - saving at army cantonments, 1726—ab
- GAS, asphyxiating, from airplanes, 133
  - asphyxiating, behavior of vegetative nervous system during poisoning from, [Leporsky] (112) 2007
  - asphyxiating, heart accidents from, [Flessinger] (30) 1832
  - asphyxiating, intravenous injections of oxygen in poisoning from, [Gakh] (115) 2007
  - asphyxiating, nervous and psychic condition with poisoning from, [Serelsky] (114) 2007
  - asphyxiating, nervous manifestations with poisoning from, [Neiding] (113) 2007
  - asphyxiating, poisoning from, treatment of, [Colard & Spehl] (28) 1203
  - asphyxiating, stomach disturbances in, [Agasse-Lafont & Roux] (23) 2211
  - asphyxiating, treatment of poisoning from, [Boldireff] (111) 2007
- GAS embolism, [von Adelung] *1522
  - Gangrene: See Gangrene, Gas
  - poison, literature on, 935
  - poisoning, clinical manifestations and treatment of, [Mandel & Gibson] *1970
  - suffocating, clinical picture of intoxication with, [Voivenel & Martin] (64) 1478
- GAS-HEATED appliances and air of workshops, 586
- GASOLINE and coal questions in Netherlands, 1099
- GASSERIAN ganglion, tumors of, *report of operative case*, [Sachs] (10) 847
- GASSETTE, Grace, decorated with cross of Legion of Honor, 222
- GASTRECTASIS: See Stomach, Dilatation of
- GASTRIC JUICE: See Stomach Secretion
- GASTRITIS: See also Dyspepsia
- GASTRITIS, circumscribed phlegmonous, simulating tumor, [von Stapelmohr] (94) 1390
  - mucus, and pylorospasm in infants, [Chevrel] (41) 947
  - phlegmonous, primary, 1354—E
  - *syphilitic arthitis and, and febrile* splenomegaly, [Verdozzi] (74) 1387
- GASTRO-ENTERITIS, alimentary, and xerophthalmia in infants, [Monrad] (110) 1122
  - in infants, infection with, [Marfan] (52) 412
- GASTRO-ENTEROLOGY and proctology, Section on, retrospect and prospect, [Murray] *1181
- GASTRO-ENTEROPTOSIS: See Enteroptosis; Gastroptosis; Splanchnoptosis
- GASTRO-ENTEROSTOMY, digestion of different kinds of food after, [Volkoff & Klopfer] (84) 76
  - peptic ulcer in jejunum after, [Urrutia] (132) 678
  - *rôle of* [illegible] following,
  - sequelae [illegible] of, and simple operative [illegible]nic, [Gronnerud] (14) 847
- GASTRO-INTESTINAL *continuity*, restoration of, by anticolic gastrojejunostomy following partial gastrectomy for cancer of pyloric end of stomach, [Balfour] (107) 1829
  - diseases, bakers' yeast in, [Hawk & others] *1243
  - diseases in tuberculous, fasting in, [Spivak] 1467—ab
  - *tract*, electrovibrator in differentiation of disturbances in, [Maragliano] (114) 677
  - tract, normal reaction of, 44—E
- GASTRON, 645
- GASTROPTOSIS: See also Splanchnoptosis
- GAUZE, oiled, and absorbing power of cotton sponges, [Sollmann] *1073
- GEL test for syphilis, [Strickler] (37) 1564
- GENERAL medical news, 52, 133, 221, 300, 395, 482, 578, 660, 746, 838, 925, 1018, 1098, 1188, 1285, 1369, 1455, 1549, 1633, 1720, 1811, 1897, 1989, 2056, 2133
- GENITALIA, female, and parathyroids, relation between, [Pool] 236—ab
  - female, relation of pituitary to, [Goetsch] 235—ab
  - influence of suprarenal bodies on, [Vincent] 236—ab
  - surgical repair of, after wounds, in male, [de Sard] (31) 2152
- GEORGIA board investigates charges against Dr. J. A. McLeay, 1550
  - medical news, 392, 835, 1367, 1630, 2053
  - state board, April examination, 307
  - state board, May-June examination, 307
- GERMAN honors renounced by British scientists, 2134
  - medical, works on, 751
  - medicine, Charcot's opinion and *criticism of*, [Roberts] 2204—C
  - Michigan State Board of Registration's action concerning German as entrance requirement, 570—E, [Burr] 751—C, [Peter, Burr & Robinson] 842—C, [Phillips & McDermott] 933—C
- GERMANY and surgical progress, 1011—E
- GERMANY *official, untrustworthiness of*, 1877—E
  - prisoners of war in, diet of, [Taylor] *1575, 1613—E
  - recent medicine and surgery in, [Leroy] (40) 1303
  - reported use of disease germs by, as *war measure*, 285—E, 300
- GERMS, guard with care, 660
- *GINO PILLS, 1640—P*
- GLASSES, concave, origin of, [Gage] 386—ab
- GLENARD'S DISEASE: See Splanchnoptosis
- *GLOBUS pallidus, progressive atrophy of*, [Hunt] (3) 756
- GLOMERULONEPHRITIS, attempt to produce, by repeated injections of bacteria, [Faber & Murray] (38) 1909
  - studies in, quantitative study of reaction of kidneys to diphtheria toxin, [Baber] (18) 530
- GLUCOSE, distribution of, in tissues, 731—E
  - *injections*, intravenous, in infancy, [Dunn] (6) 311
  - injections, intravenous, in shock, [Erlanger & Woodyatt] *1410
- GLUTEUS reflex as sign of sciatica, [Rose] (59) 412
- GLYCEMIA, influence of hemorrhages *on*, [Lépine] (59) 2004
- GLYCERIN, [Montgomery] (24) 1827
  - economy in prescribing sugar and, 839
  - scarcity of, in Italy, 133
- GLYCOSURIA, alimentary, in rats with hypoglycemia, [Schmidt] (97) 248
  - of renal origin, [Roger] (76) 496
  - traumatic, after war wounds, [Rathery] (50) 1742
- GOITER: See *also Hyperthyroidism*; Thyroid
- GOITER, chronic, constitutional disturbances with, [Dowd] *614
  - exophthalmic, and other forms of pathologic kinetic drive, [Crile] *610
  - exophthalmic, boiling water injections in, [Olivieri & Ronchi] (69) 949, [Ceballos & Bacigalupo] (90) 2076
  - exophthalmic, death after roentgen treatment, [Verning] (92) 1390
  - exophthalmic, in soldiers, [Merklen] (33) 1653
  - exophthalmic, mineral metabolism with, [Kummer] (55) 1304
  - exophthalmic, rise of basal metabolism as measure of intensity of intoxication in, 730—E
  - exophthalmic, study of basal metabolism and effect of various *forms of* treatment, [Means & Aub] *33
  - exophthalmic, surgery of, [Sloan] 1908—ab
  - from standpoint of general practitioner, [Ryan] 1907—ab
  - *from* standpoint of laryngologist, [Beck] 1907—ab
  - from standpoint of pathologist, [Wilson] 1907—ab
  - heart in, [Babcock] 1907—ab
  - prevention of, in man, [Marine & Kimball] (49) 1910
- *GOLDEN* Treatment, Haines', *for* liquor habit, 1460—P
- GOLDTHWAITE returns, 920
- GONOCOCCUS, arthritis due to, antibodies in, after intravenous injections of specific and nonspecific protein, [Culver] (46) 1910
  - cultivation of, preparation of solid and liquid media for, [Cole & Lloyd] (25) 944
  - culture medium for, new, [Thomson] (19) 493
  - lesions in periosteum, [Villapadierna] (75) 949
  - orchitis and epididymitis, *diathermy* for, [Canovas] (131) 678
- GONORRHEA, acute, in army, treatment of, [Carle] (37) 759
  - complications of, [Pusey & others] *1259
  - instructions *for* those having, [*Pusey & others*] *1349
  - *medicinal* treatment of, [Donald & Davidson] (5) 1830
  - mercury oxycyanid in, [Colombino] (75) 157
  - spurs on os calcis due to, [Merritt] *118

- GONORRHEA treatment of, [Pusey & others] *1168
  - treatment of, in Swiss military hospital, [Huber-Pestalozzi] (53) 74
- GONOSAN, 1287—P
- GOOSE FLESH, induced linear, as sign of hyperexcitability of sympathetic system, [Pende] (71) 1206
- GOUT, renal function in, [McClure] (30) 1999
  - uric acid in, [McClure & Pratt] (39) 1737
- GRAFTS: See also Transplantation
- GRAFTS, autoplastic, to close gap in skull, [Villandre] (45) 320
  - bone, free, fate of, [Serra] (63) 321
- GRANULOMA, venereal, papillomatous form of, [Roffo & Farini] (90) 414
  - venereal, tartar emetic, 3 cases, [Bonne] (4) 71
- GRAVES' DISEASE: See Goiter, Exophthalmic
- GRAY Mineral Water, misbranded, 1901—P
- GRIMBLE, Joseph C., warning against, 1633
- GROWING point in epiphyseal cartilage plate of bones, localization of, [Haas] (13) 670
- GROWTH, experimental studies on, influence of tethelin on early growth of white mouse, [Robertson & Delprat] '94) 1198
- GUM MASTIC test, mechanism and significance of, [Immerman] *2027
- GUTIERREZ of Madrid, memorial to, 1721
- GYMNASTICS, selective, 1686—ab
- GYNECOLOGY, radiology in, [Kouwer] (119) 2007
  - radium in, [Castaño & others] (54) 855
  - relation to general surgery, past and present, [Longyear] *501

H

- HABIT, [James] 1105—ab
- HABIT-FORMING DRUGS: See Drugs, Habit-Forming; and also under names of drugs
- HAINES' Golden Treatment for liquor habit, 1460—P
- HAIR disease in Brazil, [Moses] (102) 498
- HALAZONE-Abbott, 1166
- HALL'S Catarrh Cure, 1639—P
- HAND, abnormal ulnar and median nerve supply in, [Harris] (30) 2073
  - gunshot injuries of, tendon operations for, [Mayer] *2107
  - injuries to feet and, from cold, [Cottet] (62) 1656
  - protecting salve for surgeon's, [Varsi] (92) 414
- HANDWRITING, expert on insanity testifying as to indications of, 30—Ml
- HARRIS County Medical Society vs. Brown, when right of appeal to courts obtains, 1997—Ml
- HAWAII May examination, 1376
  - September examination, 1821
- HAWAIIANS, demoralization of primitive, 912—E
- HAY-FEVER and pollen, 566—E
  - Pollen in Fall-Mulford, 39
  - Pollen in Spring-Mulford, 39
  - surgical treatment, [Miller] (138) 1651
- HEAD, device to immobilize eyelids and, during operations on eyeball, [Crossley] *2103
  - injuries in war, special preparations for management in, 912—E
  - injuries, indications for operation on, [Nichols] (16) 1563
  - injuries, Surgeon-General's program for management of, 917
  - injuries, temperature as guide in, [Courtney] (17) 1563
  - rolling, during sleep, [Masci] (49) 855
  - surgery of, in war, 914—E
  - wound, gunshot, diabetes insipidus as sequel to, [Graham] (21) 1998
- HEADACHE, chronic, from loss of muscular balance between eyes, [van der Brugh] (93) 1208
  - lumbar puncture in, [Mingazzini] (65) 761
- HEALTH and recreation clubs, 2115—ab
  - conditions in camps of United States, summary for week ending Dec. 14, '17, 2121
- HEALTH department to treat drug habitués, 751—ab
  - education in rural districts, [Riser] 2143—ab
  - in War, book on, 925
  - ministry of, in England, 747, 1457, 1721, 1989, 2057
  - national health in 1916, 1721
  - ode to, 306—ab
  - of London, 748
  - officers, county, invalid law as to removal of, 938—Ml
  - public, advisory committee on, 920
  - public, decency and safety as factors in, [North] *1214, [Hill] 1817—C
  - public health work, relative value of, [Chapin] *90
  - public, normal college as disseminator of knowledge of, [Jones] 2207—ab
  - public, new, [Rankin] *1391
  - public, nurse, relative value of, in tuberculosis problem, [Heizer] 2143—ab
  - public, popularizing, [Terry & Schneider] 2143—ab
- HEARING, reeducation of, [Compaired] (105) 1659
- HEART accidents from asphyxiating gases, [Fiessinger] (30) 1832
  - activities of, 1788—E
  - anatomy of, topographic, [Bardeen] (145) 153
  - and eye and abdominocardiac reflexes, [Pron] (53) 1036
  - and eye reflex, [Laubry & Harvier] (68) 496, [Fumarola & Mingazzini] (66) 1834
  - and eye reflex in bradycardia, [Mougeot] (33) 1116
  - and eye reflex in wounded, [Gautrelet] (42) 1204
  - and eye reflex, paradoxic, [Cantelli] (67) 75
  - and liver disease, ascites from, in child under 3, [Martelli] (59) 761
  - aortic insufficiency, arterial tension with, [Amblard] (61) 1386
  - arrested action, stimulation of accelerator nerves renews, [Morat & Petzetakis] (56) 1655
  - arterial sounds, study of, [Roberts] *873
  - asynchronism of auricular systoles, [Etienne & Mondelange] (21) 2152
  - athlete's, [Heitz] (24) 1831
  - auricular fibrillation, clinical consideration, [Levine] (13) 312
  - auricular fibrillation, digitalis in, [Cushny] (15) 243
  - auricular fibrillation with heart block, [Leporsky] (109) 415
  - auricular flutter, study of case and literature, [Heard & Strauss] (33) 1196
  - beating, source of energy in, 2044—E
  - block associated with high blood pressure, 2 cases, [Musser] (19) 406
  - block, auricular fibrillation with, [Leporsky] (109) 415
  - block, chronic, alpha-iodin in, [Blackford & Willius] (13) 1469
  - block, complete, suspension of pulse and respiration at onset of epileptic seizures in man with, [Kouwenaar] (96) 1208
  - block in acute rheumatic pericarditis, [Christian] (91) 2150
  - block, partial, transient, [Schwensen] (101) 248
  - dilatation, postoperative, blood pressure, pulse pressure and hemoglobin in, [Polak] 237—ab
  - disease and syphilis, [Gaucher] (48) 1742
  - disease and war, [Ferrannini] (78) 247, [Vaquez & Donzelot] (36) 2073
  - disease, basal metabolism and minute volume of respiration in patients with, [Peabody & others] (36) 1196
  - disease, chronic, subacute endocarditis plus pulmonary endarteritis with, [Lutembacher] (9) 1115
  - disease, chronic valvular, in pregnancy and labor, [Kellogg] (35) 1296
  - disease, congenital, [Dunn] 234—ab
  - disease, cough with, [Blind & Ricard] (41) 244
  - disease, differential diagnosis of, [Mintz] (112) 1660
  - disease, drugs in, [Alsever] (116) 1381
- HEART disease, hydrotherapy for, [Schoonmaker] (118) 1318
  - disease in soldiers, [Aubertin] (46) 1204
  - disease in soldiers, significance of, [Allbutt] (16) 853
  - disease, measures other than drugs in, [Pope] 2145—ab
  - disease, more and longer supervision in, [Halsey] (117) 1381
  - disease, operative risk in, [Blackford & others] *2011
  - disease, relation of vital capacity of lungs to clinical condition of patients with, [McClure & Peabody] *1954
  - disease, thyrogenous, [Enthoven] (89) 324
  - disease, uremia in, significance of, [Josué & Parturier] (63) 157
  - disease with pulsus alternans, effect of digitalis in, [Windle] (37) 1384
  - disordered action of, in British soldiers, [Barringer] 1726—C
  - disordered action of, nervous and functional, in soldiers, [Pende] (50) 2212
  - disordered action of, (D. A. H.), or valvular disease of (V. D. H.), soldiers returned as cases of, 231
  - disorders, functional, in soldiers, 202—E
  - electrocardiographic changes associated with myocardial involvement, [Oppenheimer & Rothschild] *429
  - foreign body in, (projectile) [Pezzi] (36) 854
  - foreign body in, (shell fragment in left auricle) 1722
  - frequency and significance of left and right diastolic aortic murmurs with aortic insufficiency, [Trèmoliéres & others] (41) 1303
  - hypertrophy of, and fitness for military service, [Vaquez & Donzelot] (39) 318
  - in goiter, [Babcock] 1907—ab
  - interrelation of surviving pancreas and, of dog in sugar metabolism, [Clark] (39) 1909
  - irritable, amebic dysentery carriers among cases of, emetin bismuth iodid in detection and treatment of, [Jepps & Meakins] (41) 2151
  - irritable, bacteriologic examination of blood in cases of, [Briscoe & Dimond] (4) 1033
  - irritable, leukocytes in cases of, [Briscoe] (17) 154
  - limits of asystoly, [Perrin] (67) 1656
  - mechanical effect of fluid in pericardium on, 1613—E
  - mechanism, unusual disorder relieved by surgical operation, [Krumbhaar] (10) 67
  - mitral and tricuspid diseases, pulsating spleen in, [Manges] (16) 312
  - murmurs, [Laubry] (50) 1036
  - murmurs, circular, [de Mesquita] (72) 1119
  - perfused, researches on, [Burridge] (21, 22) 72
  - retrograde ventricular extrasystoles and postextrasystolic ventricular automatism, [Petzetakis] (35) 1035
  - rupture, spontaneous, [Tapie] (50) 1915
  - rupture, traumatic, with uninjured chest wall, report of case, [Kellert] (72) 315
  - soldiers', [Lewis] 64, [Gallavardin] (25) 1831
  - soldiers', immediate effect of cigaret smoking on healthy men and on cases of, [Parkinson & Koefod] (25) 1033
  - soldiers', protection for, [Filderman & Bonnett] (43) 2212
  - soldiers', treatment of, [Garrod] (30) 410
  - surgery of, [Delbet & Delorme] (26) 1653
  - syphilis of aorta and, [Fontaine] 2144—ab
  - tests of functional capacity of left ventricle, [Amblard] (38) 1303
  - tracings, device to ensure precision in, [Laubry & Mougeot] (34) 854
  - valvular lesions in soldiers on active service, [Galli] (77) 323
  - ventricular fibrillation in man with cardiac recovery, [Robinson & Bredeck] (34) 1999
- HEART, venous murmur, [Utheim] (93) 763
- HEAT center, cerebral, is there a, 124—E
  - in corneal ulcer, priority in application of, [Fox] 1193—C
  - loss and water economy in body, 386—E, 1701—E
  - stroke, report of 158 cases from Cook County Hospital, Chicago, [Gauss & Meyer] (10) 1469
- HEATING cabinet for severely wounded in shock, [Feuillade & Blechmann] (42) 759
- HEEL bone, apophysitis of, [Kurtz] (20) 1109
  - exostoses or gonorrheal spurs of, [Merritt] *118
- HEISER'S treatment of leprosy, results obtained in Nigeria, [Coghill] (7) 1299
- HELIOTHERAPY, artificial, in lupus and surgical tuberculosis, [Reyn & Ernest] (97) 78
  - focused, for warts, [Vallet] (44) 320
  - in bone and joint tuberculosis, [Freiberg] (17) 1109
  - in infected wounds, 53, [Freche] (41) 1654
  - in nodose erythema, [Cecicas] (75) 598
- HELMINTHIASIS in Buenos Aires, [Parodi & Widakowich] (98) 2077
- HELMINTHS in stools, to facilitate search for, [Carles & Barthélemy] (39) 1654
- HEMANGIOMAS, multiple, of skin, associated with dyspituitarism, [Head] (12) 406
- HEMATEMESIS in gastric crises of tabes, [Udaondo] (84) 414
  - surgical significance of, [Balfour] *465
- HEMATOMA of ovary, including corpus luteum cysts, [Novak] (47) 1999
- HEMATURIA and albuminuria following administration of hexamethylenamin, [Wiseman] (19) 754
  - phosphaturia as cause of, [Perrier] (64) 1206
  - with kidney stones, 4 cases, [Martin] (98) 1121
- HEMIHYPERTHROPHY with increased sugar tolerance, [Cohen] *463
- HEMILARYNGECTOMY, technic and after-treatment of total laryngectomy and, [MacKenty] *863
- HEMOCHROMATOSIS, diabetes associated with, [McCreery] (22) 149
- HEMOGLOBINURIA in malaria contracted in Macedonia, [Delille & others] (25) 1302
- HEMOLYSINS in spiders' eggs, [Houssay] (73) 76
- HEMOLYSIS by sodium oleate and sodium gynocardate, [Southerland & Mitra] (11) 409
  - variations in resistance of blood cells to, [Rhamy] 1728—C
- HEMOPHILIA, course of wound in hemophiliac, [Fiessinger & Montaz] (47) 1654
- HEMOPTYSIS, bronchopneumonia following, [Reinhardt-Goodwin] (83) 1383
  - kidney insufficiency with, [Pasanis] (79) 762
  - tuberculous, thromboplastin and euglobulin in, [Mannheimer & Wang] (7) 1826
- HEMORRHAGE, antepartum, vaginal plug in, [Tweedy] (19) 154
  - influence of, on glycemia, [Lepine] (59) 2004
  - Lung: See Hemoptysis
  - occult, in alimentary canal, improved technic for detection of, [Rassers] (149) 680
  - postoperative, blood pressure, pulse pressure and hemoglobin in, [Polak] 237—ab
  - post-partum, management of, [Brandt] (85) 1573
- HEMORRHAGIC DISEASE in new-born, direct transfusion in, [Knox] 233—ab
  - in new-born infant, indirect transfusion in, [Knox] (35) 2118
- HEMORRHOIDS, phenol injection in, [Escomel] (83) 247
  - quinin and urea in, [Terrell] *1509
- HENK Waukesha Mineral Water misbranded, 1901—P
- HEPATIC tissues in acute anaphylactic shock, [Manwaring & Crowe] *772
- HEPATICO Tablets, 1874—P

HERNIA and defective teeth and heart as affecting military service, [Galli] (60) 75
cause and prevention of, [Pitzman] *776
in children, operations for, and remote results, [Brossy] (62) 1206
inguinal, new operation for, [Hull] (3) 1912
inguinal, operation for radical cure of, [Slattery] (14) 1567
inguinal, radical cure of, [Starr] (41) 1296
inguinal, relation of iliohypogastric nerve to radical cure of, [Moschowitz & Neuhof] (37) 313
liability of corporation undertaking to cure,—"pas-tr-pad" case, 846—Ml
lumbar, [Campora] (60) 245
of brain, traumatic, [Tenani] (61) 75
strangulated, [Stineer] (64) 597
HERNIOTOMY, improved technic for, [Soubeyran] (50) 1655
HERPES with malaria, [Garin & Descos] (51) 760
zoster, [Boix] (70) 2156
zoster, a focal infection, [Lain] (42) 1564
HERSCHEL, Sir William, death of, 1812
HEXAMETHYLENAMIN, albuminuria and hematuria following administration of, [Wiseman] (19) 754
HICCUP, rebellious, arrested by compression of eyeballs, [Aquino] (104) 159
HIND-GUT, pigmentation of, pathologic and experimental study, [McFarland] *1946
HIP joint and Roser-Nélaton line, [Motoshima] (82) 1835
joint, disarticulation of, technic for, [Moreno] (86) 2157
joint, osteo-arthritis of, operative treatment of, [Ozarki] (12) 2069
joint, resection of, for war wounds, [Alquier & Tanton] (34) 1914
joint, supra-articular subperiosteal approach to, [Smith-Petersen] (15) 670
juxta-articular bone lesions of, [Taylor & Barrie] *1227
osteochondritis juvenilis of, treated and untreated, [Blanchard] *1060
HISTORY, medical, of war, 1090
medical, of war, constitution of board to write, 1380
HODGKIN'S DISEASE, [Dias] (89) 1658
cutaneous manifestations of, [Cole] *341
cutaneous metastases in, [Alderson] (41) 1564
pathologic histology of, new interpretation of, [Symmers] (61) 69
HOLOCAIN, action of, on bladder, (73) 1738
HOOD'S Sarsaparilla, 1639—P
HOOKWORM DISEASE: See Uncinariasis
HOSPITAL accommodation for rural sick, how people of western provinces are endeavoring to provide, [Tuckwell] (45) 1296
air raid and, 222, 920
American, opened in London, 1551
American women's, 655, 1702
base, and ice machine, 126—E, 1531—E
base, eligibility of physicians of foreign birth for service in, 45
base, first impressions of, 478
base, French, in Russia, 2057
base, in France, news of, [Hirschman] 1881
base, medical impressions of, [Mandel] *637
base, news from foreign, 1532
base, news of, 1086, 1977, 2122
base, No. 4, U. S. Army, on active duty, 206
base, No. 5, casualties in, 1014
base, No. 27 (Pittsburgh) organized for active duty, 206
base, Pennsylvania, to increase, 478
base, Red Cross, [De Lee] 630—C, [Blech] 1103—C
base, Virginia, organized, 478
bombardment of, 1100
cantonment, 477
car, 1811
casualty clearing stations, [Goodwin] *636
city not liable for injury from materials negligently left at, 143—Ml
donated for war cripples, 207
HOSPITAL, field, pitching and striking United States Army Field Hospital, [Reno] *1421
flying, base, [Pilsson] (24) 2211
flying, origin of, [Owen] 1283—C
history of, through 6 centuries, [Schoute] (92) 1208
liability of employer for services of, after 30 days period, 2142—Ml
military, construction fund, 127
military, in charge of Depage, visit to, [Gayet] (29) 317
military, of 50 years ago, 1792—E
military orthopedic reconstruction, 1091, [Mayer] *1522
military, standardization of, 1434—ab
military, under army medical corps in Canada, 2056
moral obligation of medical intern to, [Lockwood] 1290—C, [Eisendrath] 1562—C
Piñro, at Buenos Aires, 1370
private, validity of ordinance restricting location of, 1027—Ml
provisions for army, 477
Rotunda, pathologic report of, [Rowlette] (6) 2210
ships, British, in Canal zone, 830
ships, Germans agree not to attack, 1090
ships, motor, on Tigris, 134
ships, new, 472
staffs, appeal for women on, [Dubois] 1290—C
[illegible] service, [illegible] 9
unit, home, [Wannamaker] 223—C
unit, women's, accepted, 1271
HOT drinks and foods as factors in stomach troubles, [Manquat] (34) 1476
HOUSE, model, for Philippines, 27—ab
HOUSING, national conference on, 1369
HUMERUS, diffuse traumatic aneurysm in surgical neck of, [Knaggs] (2) 2151
excising head of, new method for, [Thomas] (37) 1736
graft of epiphysis of, [Arana] (89) 2076
gunshot fractures of shaft of, [Eastman] *251
rubber prosthesis for, [Delbet & Girode] (31) 1832
HUMIDITY and humidifiers, 1174—E
of schoolrooms, 825—E
HUNGER and appetite in fever, [Meyer & Carlson] (13) 1294, 1614—E
and appetite secretion of gastric juice in infant's stomach, [Taylor] (2) 1562
contractions of empty stomach, influence of experimental ulcers of duodenum and stomach on, [Dundon] (14) 1294
in infant, 1527—E, [Taylor] (1) 1562
HYCLORITE, 1081
HYDATID Cyst: See Echinococcosis
HYDROCELE, rupture of, in vaginalis, [Ramos] (46) 1384
HYDROCEPHALUS, internal, [Dandy & Blackfan] (2) 2208
sarcoma of brain simulating, [Holt] 311—ab
HYDROGEN ion concentration of blood, effects of, 1789—E
HYDROPHOBIA, antirabic vaccinations in Institut Pasteur, 1100
Fermi's modification of Pasteur's treatment, 515—ab
in man, [Jourdran & Marchand] (31) 595
HYDROTHERAPY: See also Baths
HYDROTHERAPY in heart disease, [Schoonmaker] (118) 1381
HYGIENE and preventive medicine, 229
medical, American representative authorities in, [Matignon] (59) 1477
military, Camp Greenleaf school of, [Page & Abbott] 1794
military, field sanitary orders, [McCulloch] *1345
[illegible] biliary [illegible] 076
[illegible], menstrual, with cholelithiasis, [Goñalons] (90) 1120
HYPERGLYCEMIA, epinephrin, and decreased alkali reserve of blood, relations between, [Peters & Geyelin] (70) 850
experimental, and epinephrin secretion of suprarenals, [Stewart & Rogoff] (12) 2147
HYPERNEPHROMA, bone metastasis of, [D'Agata] (79) 2005
HYPERPYREXIA, typhoid with, [Drury] (31) 673
HYPERSUSCEPTIBILITY: See Anaphylaxis
HYPERTENSION: See Blood Pressure, High
HYPERTHYROIDISM, experimental, [Kendall] *612
HYPERTROPHY, hemihypertrophy with increased sugar tolerance, [Cohen] *863
HYPNOTIC suggestion for wounded, [Podiapolsky] (38) 1201
suggestion, influence of, on inflammatory conditions, [Hadfield] (17) 2003
HYPOCHLORITES, nasopharyngeal disinfection by, 651—E
HYPOGLYCEMIA, alimentary glycosuria in rats with, [Schmidt] (97) 248
peptone, [McGuigan & Ross] (39) 149
HYPOPHYSIS Cerebri: See Pituitary Body
HYPOTHYROIDISM, effect of thyroid medication on basal metabolism, renal function and nitrogen balance in chronic nephritis and, [Bowen & Boothby] (32) 2070
HYSTERECTOMY, fundal, to reduce menstruating surface, [Dickinson] 1293—ab, (1) 1998
suprapubic, cancer in stump of cervix following, [Vander Veer] (7) 1998
transplantation and retention of ovarian tissue after, [Graves] 237—ab
HYSTERIA, reflex nervous disturbances associated with, in wounded, [Babinski & Froment] (96) 676
traumatic, [Somerville] (165) 493
HYSTERONEUROSES, traumatic, clinical unity of, [Farrand] (41) 318
HYSTEROTOMY, anterior, uterine rupture following, [Kahle] *2170
transperitoneal, versus uteroscopy, [Heineberg] (2) 669

I

ICE machine and base hospital, 126—E, 1531—E
ICHTHYOLIZED petrolatum for burns, [Suarez] (86) 1479
ICHTHYOSIS, familial [Magnus] (137) 500
ICTERUS: See Jaundice
IDAHO medical news, 218, 1367,
IDENTIFICATION of dead in war, [Bosredon] (26) 2211
tag for personnel of Navy, 127
IDIOCY: See also Feeblemindedness
IDIOCY, mongolian, etiology of, [Herrman] (25) 819
ILIOCECAL tuberculosis, [Guérin] (38) 73
ILEOCOLITIS, acute, in infancy, [Aikman] (26) 849
ILIUM, markings of nutrient canals of, mistaken for fracture, [Smith-Shand] (7) 2151
ILLICUM religiosum Siebold, poisoning by, [Guerrero & others] (95) 943
ILLINOIS medical news, 48, 130, 218, 297, 392, 480, 574, 657, 744, 836, 922, 1017, 1096, 1185, 1282, 1367, 1451, 1546, 1630, 1717, 1808, 1894, 1987, 2053, 2131
Vigilance Association, pamphlet on venereal diseases prepared by, 2121
IMBECILITY: See Idiocy
IMMUNITY, ether and etherization in relation to infection and, [Haines] 1734—ab
part played by empiricism in development of our conceptions of, 1266—E
problem of metabolism and, in dermatology, [Bloch] (48) 1118
IMPETIGO contagiosa, treatment of, [Morrow] *176
IMPLANTS: See Grafting; Transplantation
IN FLANDERS' FIELDS, [McCrae] 1177, 1437
INCISION, rectangular flap, for operations in upper abdomen, [Meyer] *1677
relaxation, in extensive unstable scars, [Davis] *2085
INCOME tax, stock and bond transactions in relation to, 935
taxes, just and unjust, 1880—E
INDIA ink infiltration, substitute for corneal tattooing, [Verhoeff] *1120
medical supplies in, 1550
INDIANA medical news, 49, 130, 297, 657, 741, 836, 1096, 1185, 1367, 1630, 1717, 1895, 1987
state board, July examination, 1557
INDICANEMIA, [Fara] (67) 183
as symptom of insufficiency of kidneys, [Tchertkoff] (63) 1206
INDICANURIA in children, [McClanahan] 311—ab
INDIGESTION: See Dyspepsia
INDUSTRIAL diseases, causes of death by occupation, 937—ME
dispensary in preventive medicine, [McCurdy] *1318
hazard, spray method of finishing and decorating as, 142
health, protection of health of worker in war, [Clark] *1124
hygiene, health of war workers, books on, 1375
plant, accident prevention and welfare work in, 725—ab
poisoning in aircraft manufacture, [Hamilton] *2037, 2041—E
training for war cripple, [McMurtrie] 1752—ab
INEBRIETY: See Alcoholism
INFANTILISM, intestinal, effect of cod liver oil on growth in, [Holt & others] (7) 1028
INFANTS, anemia in, pernicious, [Bradley] (9) 594
appendicectomy in 12 hours old infant, [Vargas] (32) 1204
appendicitis in, [Abt] (8) 1562
appendicitis in 9 month old, [Abt] 235—ab
catheterization of, 1819
chylothorax in, [Pisek] 310—ab
diarrhea in, acute, 645—T, 934
diarrheal diseases, acute, classification and treatment, [Morse] 2208—ab
diseases of respiratory apparatus in, brought to welfare station, [la Feria] (76) 1038
drug eruption in, [Lomholt] (102) 78
fat incapacity in, familial tendency to, [Southworth] *516
feeding, establishment, maintenance and reinstitution of breast feeding, [Sedgwick] *417
feeding, exclusive carbohydrate, evils of, [Acuña] (76) 1917
feeding, milk powder in, [Blumenau & Petipa] (103) 2077
feeding, oatmeal gruel in, [Levinson] (14) 1562
feeding, technic of wetnurse management in institutions, [Abt] *418
food requirement of, 1175—E
gastric secretions in, 1436—E
gastro-enteritis and xerophthalmia in, [Monrad] (110) 1122
gastro-enteritis in, infection with, [Marfan] (52) 412
hunger and appetite secretions of gastric juice in, [Taylor] (2) 1562
hunger in, [Taylor] (1) 1562
hungry, 1527—E
ileocolitis in, acute, [Aikman] (26) 849
intravenous glucose injections in, [Dunn] 145—ab, (6) 311
intussusception of bowel in, [Jeans & Johnston] (8) 311
malaria in, [Smith] 2208—ab
metabolism of 2 normal, and total energy requirements of infants, [Talbot] 146—ab, (2) 311
mortality, 1022—ab
mortality and social conditions at Manchester, N. H., 45—E
mortality, avoidable, in Italy, [Allaria] (56) 1571
mortality in Ontario, 925
mucous gastritis and pylorospasm in, [Chevrel] (41) 947
new-born, acute meningitis in, [Condat] (33) 1204
new-born, care of, 42—E
new-born, hemorrhagic disease in, direct transfusion in, [Knox] 233—ab
new-born, hemorrhagic disease in, indirect transfusion in, [Knox] (35) 2148
new-born, meningococcus meningitis in, [Miller] 235—ab
new-born, physiologic drop in weight of, [Borrino] (60) 761
new-born, skull injury at birth, [Stein] *334
new-born, sugar content of blood of, [Cannata] (52) 1570

INFANT, new-born, uric acid content of blood in, [Sadgwick & Kingsbury] 147—ab, (3) 588
  new-born, uric acid infarcts in, 1699—E
  nutritional disturbances in, [Ravenna] (67) 948
  nutritional disturbances of, cheese in dietetic treatment of, [Menshikoff] (87) 1479
  phenolsulphonephthalein elimination in young children and, [Gittings & Mitchell] (2) 1023
  pneumonia in, mortality and treatment with reference to use of alcohol, [Koplik] *1661
  premature, rickets in, [Huenekens] 1825—ab
  proportion between males and females born, [Maurel] (13) 594
  pyloric stenosis in, [Haggard] 2066—ab
  rumination in first year of life, [Grulee] (5) 1028
  sinusitis in, diagnosis and treatment of, [Skillern] *895
  suppuration in urinary apparatus of, [Gurgel] (86) 2006
  total blood solids and concentration of sodium chlorid in plasma, variations in, [Courtney & Fales] (4) 1028
  tuberculosis in, pulmonary, prognosis of, [Hempelmann] (27) 68
  tumor of kidney weighing 3 pounds in 10 months old, [Darnall] (10) 1998
  urine reaction in, [Flamini] (57) 1571
  urine reaction in, relation to diet, [Torres] (4) 1825
  welfare, 482
  welfare in public health instruction, place of, [Knox] *1156
  welfare unit goes to France, 1090
  welfare work, first, 1137—ab
  welfare work in Netherlands, [van Rijnberk] (93) 77
INFECTION, contact, 567—E
  focal, effect of tonsillectomy on, [Gillespie] 1824—ab
  focal, organic changes in central nervous system due to, [Hall] *789
  focal, skin lesions due to septicemia and, [Ravitch] 2067—ab
  functioning of suprarenal capsules in, [Goormaghtigh] (39) 1475
  non-specific measures in, [Manier] (132) 852
  Puerperal: See Puerperal Infection
  spread of, as war measure, 285—E
INFECTIOUS DISEASES, acute, atypical convalescent stage after, [Baccarani] (55) 74
  of past year, 222
INFLAMMATORY conditions, influence of hypnotic suggestion on, [Hadfield] (17) 2003
INFLUENZA, bacteriology of acute epidemic respiratory infections, [Mathers] (66) 150
  in 1916 from obstetrical standpoint, [Chomé] (34) 243
  meningitis, [Tobler] (52) 760
INJECTIONS, intraspinal, in syphilis of nervous system, [Sachs] *681
  intravenous, in infants, [Dunn] 145—ab, (6) 311
INK, skin, [Finzi] (10) 672
INOSITE, action of similar bodies and, on elimination of glucuronic acid, [Sasaki] (86) 77
  fate of, in body, 829—E
INSANE, cerebrospinal fluid of, mastiche and potassium permanganate tests of, [Lowrey] (11) 489
  representing to judge that person is insane and needs hospital treatment, 488—Ml
INSANITY: See also Mental Diseases; Psychiatry
INSANITY, alcohol as cause of, decline of, [Pollock] (65) 756
  decrease of, 2134
  expert testifying as to indications of handwriting, 230—Ml
INSECT transmission of disease, 1773—ab
INSECTICIDES, arsenical, dangers in manufacture of, 1610—E
  possible dangers of ordinary, 1083—E
INSPECTION: Medical, of Schools: See Schools, Medical Inspection of
INSTRUMENT: See also Apparatus
INSTRUMENT, anal speculum, operative, [Smiley] *121
  blood lancet, [Stein] *393
  tonsil suture, [Hourn] *999
INSURANCE act, 55
  act and British Medical Association, 396
  government control of war risk beneficiaries, 1438
  law, proposed compensation and, 650—E
  law, soldiers' and sailors', 650—E, 652, 1697—E, 1820
  life, and military service, [Piper] 227—C
  panel practice, 55
INTERNATIONAL Child Welfare Congress, 1188
INTERNS and medical students in selective service act, 652
  and medical students may join enlisted Medical Reserve Corps and be discharged by local boards from service in National Army, 830
  and the draft, 827—E
  conscription of, 652
  exemption of medical students and, 917, 1011, 1089
  exemption of medical students and, advice to medical students, 1270
  moral obligation of, to hospital, [Lockwood] 1290—C, [Eisendrath] 1462—C
  permission for permitting those accepted for draft to continue professional duties temporarily, 1089
  regulations under selective service law concerning medical students and, 1977
  shortage of, and medical students, 571—E
  shortening of internship to 1 year, expedient to relieve situation arising from, [Goldwater] 1819—C
  what facilities do hospitals afford for reception of special interns, [Wishart] 1555—C
INTESTINE, action of sodium citrate on isolated, [Salant & Schwarzte] (67) 240
  action of succinate and its hydroxy derivatives on isolated, [Salant & others] (68) 240
  adhesions and peritoneal bands in epileptics, [Caro] (31) 849
  bacteria, effect of starvation on, 472—E
  cancer of large, roentgen diagnosis of, [Bensaude & Guénaux] (39) 155
  disease, chronic, and military service, [Laubry & Marre] (45) 1833
  diverticulitis of large, [Mayo] *781
  effect of temperature on rhythm of excised segments from, [Taylor & Alvarez] (7) 1735
  flagellate infection of, irrigation method in, [McNeil] (106) 408
  functioning, abnormal, pituitary extract in, [Pimental] (69) 1305
  melanotic sarcoma of small, [Vander Veer & Kellert] (147) 316
  obstruction, acute, [Hendon] 2144—ab
  obstruction, acute postoperative, and paresis, [Beckman] (53) 940
  obstruction, complete and incomplete, [Draper] *1768
  obstruction, experimental observations with practical suggestions, [Jackson] (79) 1032
  parasite, danger from trachoma and, to army recruits, 913—E
  parasites in Colombia, [Henao & Villa] (114) 499
  pigmentation of hind-gut, pathologic and experimental study, [McFarland] *1946
  postoperative eventration of, [dré Kolias] (134) 675
  protozoa, occurrence of, in nondysenteric cases, [Macfie & others (5) 1299
  purged, changes in rhythmicity, irritability and tone in, [Alvarez & Taylor] (29) 2069
  secretion of, development of toxicity in, [Davis & Stone] (35) 1909
  small, true antiperistalsis in, 1463
  stasis and left fallopian tube, [Stewart] 1378—ab
  stasis and migraine, relationship and treatment, [Einhorn] *1315
  stasis, surgical treatment of, [Horsley] *714
  stenosis of large, roentgen diagnosis of, [Benaude & Guénaux] (36) 318
  toxemia, chronic, symptomatology of nervous system in, [Satterlee & Elridge] *1414
  trichocephalosis, fatal case of, [da Matta] (81) 247
  trichomastix (n.sp.) parasitic in, [Chatterjee] (24) 2072
INTESTINE, tuberculosis of, surgery in, [Archibald] (6) 1826
  wound of, gunshot, [Palmer] 1733—ab
  yeast-like fungi of, [Anderson] (48) 1380
INTOXICATING liquors, prescribing, construction of statute regarding, 1027—Ml
INTRAMINE refused recognition by Council, 841—P
INTUBATION of larynx, [Cartin] *460
  tube, fastening in throat, [Bernasconi] (42) 1117
INTUSSUSCEPTION of bowel in infant, [Peskind] (8) 311
IODAGOL refused recognition by Council, 1725—P
IODEOL refused recognition by Council, 1725—P.
IODIN fumes in chronic cystitis with retention, [Cifuentes] (129) 678
  in tuberculosis, [Boudreau] (49) 412
  ointments of, [Vaughan] 1817—C
  urine reaction, [Thury] (59) 1206
IODIZATION, artificial, of proteins in attempt to produce substance with thyroid-like activity, [Rogoff & Marine] (26) 2069
IODIZED starch in infected wounds, 1457
IOWA medical news, 49, 131, 575, 658 922, 1017, 1186, 1282, 1452, 1546, 1717, 1808, 1895, 2054
  state board June examination, 1376
  state board reciprocity report, 307, 1557
IPECAC ALKALOIDS and some synthetic derivatives of cephaelin, [Walters & Koch] (86) 315, [Walters & others] (82) 1297
  and synthetic derivatives of cephaelin, protozoocidal and bactericidal action of, [Walters & others] (28) 2069
  in intestinal amebiasis, [Crowell] *6
IRELAND, welfare of mothers and children in, 1905—ME
IRIS, examining with strong light brings on epileptic seizure, [Manthos] (83) 763
IRITIS, causes of allied inflammations and, [Jackson] 1561—ab
IRON as antidote for cottonseed meal injury, [Withers & Carruth] (89) 2000
ISCHIUM, fracture of, [Tyler] *1421
ISOPATHY, 1266—E
ITALIAN and English medical books, 1194
  "Index Medicus," 750—ab
  medical prisoner of war, impressions of, 739
ITALY, annual meeting of internists in, 1455
  Red Cross commission to, 477

J

JADASSOHN to succeed Neisser in Breslau, 1720
JAMES BUCHANAN BRADY foundation of Urology, 1549
JAUNDICE, epidemic, residual chronic suprarenal insufficiency left after, [Notari] (77) 1207
  hemolytic, relation of spleen to blood destruction and regeneration and to, [Goto] (56) 2149
  hemolytic, review of 17 cases, [Giffin] (107) 593
  hemorrhagic, spirochete of, in rats at Rio, [Aragao] (85) 2006
  hemorrhagic, spirochetosis with, [Inada & others] (138) 679
  icterohemorrhagic spirochetosis, [Valassopoulo] (38) 1653
  infectious, [Dawson & others] (3) 1473
  infectious, in troops on active service, clinical and experimental research on, [Civalleri] (70) 1119
  rat as carrier of spirochaeta icterohemorrhagiae, causative agent of Weil's disease, [Ido & others] (53) 1110
  spirochaeta icterohemorrhagiae, distribution in human body of, [Kaneko & Okuda] (52) 1110
  spirochaeta icterohemorrhagiae, wild rats of southern states as carriers of, [Jobling & Eggstein] *1787, 2208—ab
  spirochetosis, [Capri & others] (53) 948
JAVEL water in infected wounds, 2057
JAW, resection of upper, retaining floor of orbit in, [Van Hook] *1140
JEJUNOSTOMY, indications and methods, [Mayo] 1824—ab
JEJUNUM, peptic ulcer in, after gastro-enterostomy, [Urrutia] (132) 678
JOINT and bone infections, Carrel technic in, [Hawley] (14) 670
  etiologic factors in gross lesions of large, [Clark] *2099
  impotence, measurement and record of, [Binet] (38) 759
  lesions with syringomyelia, [Askgaard] (116) 1660
  neuropathic affections of, nature of, [Eloesser] (17) 847
  surgery of bones and, with reference to open operative treatment of fractures and method of arthroplasty in ankylosis of elbow joint, [McKenna] *891
  tuberculosis of bones and, influence of sun's rays on, [Freiberg] (17) 1109
  syphilis in and about, latent manifestations of, [Hatch] 2066—ab
  tuberculosis of bones and, reaction to human and bovine tuberculin applied by method of Von Pirquet, [Gauvain] (2) 1652
  wounds in war, sodium salicylate in prophylactic treatment of, [Impallomeni] (75) 1656
JOURNALS, medical and war, 579
  medical, in Argentina,—El Monitor, 1099
  neurologic quarterly, founded in Switzerland, 482
JOUTY, A., death of, 1551
JUNK shops, Philadelphia regulates, 228—ab

K

K-Y Lubricating Jelly rejected by Council, 1102—P
KALA-AZAR: See also Leishmaniosis
KALA-AZAR in Sudan, intravenous injections of antimonium tartaratum in, [Christopherson] (11) 1831
  tartar emetic in, including use in young children, [Rogers] (6) 1383
  tartar emetic in infantile, [Longo] (75) 1038
KANSAS medical news, 49, 658, 1283, 2054
  State Board of Health Book for Mothers, 300
KAUFMANN'S Sulphur Bitters 863—P
KEAN, COL. JEFFERSON R., new office for, 206
KENTUCKY medical news, 297, 392, 1717, 1808, 1987, 2131
  medical pioneers of, 1880—E
KERATOCONJUNCTIVITIS, lymphatic-nodular, [Goldbach] *102
KERATOCONUS, operative method for relief of advanced cases, [Wiener] *797
KIDNEY, adenosarcoma in right, of girl of 6, [Kirmisson & Trétiakoff] (28) 72
  albuminuria and renal functional changes following administration of full therapeutic doses of salicylate, [Hanzlik & others] (64) 69
  bone production in, [Pirondini] (81) 1387
  calculi and infarcts in, without symptoms, [Martin] (80) 76
  calculi, clinical diagnosis of lithiasis of upper urinary tract, [Young] *1490
  calculi, clinical study of, [Bugbee] *1492
  calculi, false, roentgenograms showing, [Voorhoeve] (112) 415
  calculi, hematuria with, 4 cases, [Martin] (98) 1121
  calculi, incidence of phosphatic urinary calculi in rats fed on experimental rations, [Osborne & others] *32
  calculi, operative treatment, [Suter] (37) 595
  calculi, pains with, [Martin] (102) 415
  calculi, roentgenography with, [Martin] (66) 1571
  changes produced by oil of chenopodium and fatty oils and protective action of diet on kidney, [Salant & Bengis] (69) 240
  circulation and architecture and function of organ in health and disease, [Gross] (46) 490
  cures, 915—E
  disease, surgical, residual nitrogen in blood with, [Sabroe] (114) 1746
  disease, surgical, simultaneous use of indigocarmin and phenolsulphonephthalein tests in, [Peterson] (123) 1829

- KIDNEYS, do they contain secretory nerves? 735—E
  - endothelioma of, [Funke] (26) 189
  - function and morphologic changes in animals following administration of salicylate, [Hanzlik & Karsner] (63) 69
  - function, comparative results of various tests, [Thomas & Birdsall] *1747
  - function, effect of anesthesia and operation on, [Colp] (9) 67
  - function, effect of thyroid medication on basal metabolism, nitrogen balance and, in chronic nephritis and hypothyroidism, [Bowen & Boothby] (32) 2070
  - function in gout, [McClure] (30) 1929
  - function, phenolsulphonephthalein elimination in children and infants, [Gittings & Mitchell] (2) 1025
  - horseshoe, radiodiagnosis of, [Voorhoeve] (34) 1833
  - in diabetes insipidus, 1083—E
  - infection, acute hematogenous unilateral, [Maury] (113) 408
  - infection, leukocyte counts on urine in, [Kretschmer] *1505
  - injuries to pancreas following operation on right, [Young & Colston] (79) 151
  - insufficiency, acute, of liver and, [Merklen] (56) 2004
  - insufficiency associated with urticaria in hypersensitive individuals, [Longcope & Rackemann] (62) 1111
  - insufficiency, changes in sweat glands with, [Montalbo] (56) 948
  - insufficiency indicanemia as symptom of, [Tchertkoff] (63) 1206
  - insufficiency with hemoptysis, [Pasanis] (79) 62
  - lesions, acute and chronic, production with bacillus mucosus capsulatus, [Major] (111) 1199
  - lesions from lead poisoning, [Ramazzini] 290—ab
  - movable, new operation for, [Bartlett] *625
  - movable, surgical treatment of, [Johannessen] (83) 1573
  - nontuberculous suppurative processes in, [Pascual] (68) 856
  - reaction of, to diphtheria toxin, [Faber] (48) 590
  - solitary cysts in, [Magnini] (72) 246
  - Surgery: See also Nephrectomy
  - tuberculosis, chronic, curability of, [Hallé] (48) 2154
  - tuberculosis, nephrectomy for, end-results of, [Lower & Shupe] (115) 1829
  - tuberculosis, utilization of immune response in, [Bonine] (1) 1469
  - tumor, mixed cell, in infant, [Darnall] 1378—ab, (10) 1993
  - wounds caused by war projectiles, 578
- KINETIC drive, exophthalmic goiter and other forms of, [Crile] *610
- KNEE, acute arthritis of, following injury, new pathogenic sporotrichum found in, [Wolbach & others] (47) 490
  - contusions, simple, [Chalier] (52) 1205
  - excision of, patellar bone graft in, [Galloway] (24) 1471
  - joint capsule, tumors of, [Züllig] (62) 2004
  - joint, drainage of, [Mayo-Robson] (9) 1740
  - purulent arthritis of, treatment of, [van Vliet] (100) 2158
  - resection of, in treating war wounds, 661
  - stiff, surgical correction of, [Putti] (60) 321
  - traumatic factitious arthritis of, [Mori] (76) 247
  - tuberculosis of, operative treatment for, in adults, [Osgood & Bull] *1162
  - wounds, gunshot, [Campbell & Woolfenden] (17) 1033
  - wounds, gunshot, early treatment of, [Gray] (10) 1201
  - wounds, gunshot, treatment of, [Page] (12) 1201
  - wounds in war, [Petrilli] (67) 2156
  - wounds in war, present status of treatment, [Bérard] (54) 321
  - wounds in war, treatment at advanced operating stations, [Schwartz] (39) 1833
  - wounds, penetrating, 1189
  - wounds, treatment of, [Novis] (47) 494, [Barling] (9) 1201
- KOCHER, death of, 483
- KOENIG'S Nerve Tonic, 139—P
- KOJO-SALKOWSKI test for colloidal nitrogen in urine, 1291
- KRUL, R., 60 years of medical practice, 1989

L

- LABOR: See also Obstetrics
- LABOR, chronic valvular heart disease in pregnancy and, [Kellogg] (35) 1296
  - indications for evacuation of uterus in severe pneumonia, [Colliste & Carlevaro] (73) 2156
  - management of delivery with contracted pelvis in infected cases, [Gabastou] (95) 2158
  - nitrous oxid-oxygen analgesia and anesthesia in, [Turner & Jones] 1734—ab
  - pituitary treatment in, [Jimenez] (60) 597
  - postpartum hemorrhage, management of, [Brandt] (85) 1573
  - probable phlebitis of inferior vena cava in parturient, [Mejia] (59) 597
  - tyramin as adjunct to morphin in, [Barbour] *882
- LABORATORIES, clinical, mobile, 733—E
  - military, [Russell] 1538—ab
  - motor, for French Red Cross, 55
  - opportunities for women in, 569—E, [Hastings] 935—C
- LABYRINTH, vertigo as symptom of primary disease of, [Shambaugh] *805
- LACRIMAL SAC, endonasal operation on, [Chamberlin] *17
- LACTATION, abnormalities in milk due to stage of, 1613—E
- LACTIC Acid: See Acid, Lactic
- LAMBLIOSIS, chemotherapy of, [Yakimoff & others] (115) 679
- LAMINECTOMY in fracture of spine with cord symptoms, indications for, [Hartwell] (18) 1563
  - neurologic observations in 150 operations for disease and injury of spine, [Elsberg] (1) 67
  - simplified technic in, with description of combined laminectomy and spine fixation by bone transplant, [Gaenslen] *1160
- LANE medical lectures, 1285
- LAPAROTOMY for gunshot wound, unusual complication, [Johnston] (7) 1642
- LARREY and origin of flying hospital, [Owen] 1289—C
  - Baron, the French army surgeon, [King] 1106—ME
  - originator of rapid evacuation of wounded, 1084—E, [Ashe] 1375—C
- LARYNGECTOMY, technic and after-treatment of hemilaryngectomy and, [MacKenty] *863
- LARYNGITIS, tuberculous, diagnosis of, [Dworetzky] *619
  - tuberculous, treatment of pain with, [Centrangolo] (122) 499
- LARYNGOLOGY, rhinology and otology, relation to general medicine, [Emerson] *859
- LARYNX, intubation of, [Cartin] *460
  - stenosis of trachea and, mechanical device for dilatation with, [Jouty] (63) 1656
  - tuberculosis of, rest from vocalization in, [Porcher] 1291—C
  - wounds of trachea, esophagus and, in war, [Lannois & others] (22) 317
- LATHE workers, wound infection among, [Shie] *1921
- LATHYRISM, [Stockman] (10, 11) 2071
- LAUNDRY, sanitation of, 203—E
- LEAD in urine, test for, 1536
  - poisoning, kidney lesions from, [Ramazzini] 290—ab
- LEASES, cancellation of, for Reserve Officers, 737
- LE BEL decorated with Legion of Honor, 1898
- LEG: See also Arm; Extremities; Limb
- LEG, fracture of, [Troell] (84) 858
  - ulcers, treatment of, [Cunier (66) 1478
  - wounds, treatment of, [Cherrier] (79) 496
- LEGION OF HONOR, American decorated by, 302, 1458
- LEGLUDIC, death of, 1458
- LEIOMYOMA of appendix, [Reuway] *2175
- LEIPZIGER Verband, meeting of, 2056
- LEISHMANIASIS, American, [Quin- [illegible]] [illegible] 2076
- LEISHMANIOSIS, American, oxid of antimony in, [Escomel] (89) 158
  - loss of entire nose from, [Torres] (103) 198
  - naso-oral, intravenous injections of antimonium tartaratum in, [Christopherson] (11) 1831
- LENS, crystalline, embryonal growth center in, [Vogt] (60) 1916
- LENTICULAR degeneration, chronic progressive, with mental deterioration, [Thomas] (20) 2209
- LEPERS in Colombia, 121—ab
- LEPROSY, bone changes in, [Honeij] (11) 1736
  - Heiser's treatment of, results obtained in Nigeria, [Coghill] (7) 1299
  - in Philippine Islands, statistical study of, [Denney] *2141
  - unsolved problems of, [Kraus] (71) 1571
- LEUKEMIA, [James] 1733—ab
  - acute, [Nicolaysen] (92) 763
  - in man and fowls, comparative research on, [Ellermann] (111) 500
  - myelocytic, radium in, [Giffin] (13) 2069
  - myelogenous, acute, unusual case of, [Simon & Rosenthal] *2168
- LEUKOCYTE counts on urine in infections of kidney, [Kretschmer] *1505
  - formula in human beings, rabbits and guinea pigs in Valley of Mexico, [Ocaranza] (85) 2157
  - in cases of irritable heart, [Briscoe] (17) 151
  - in urine, degeneration of, diagnostic aid in tuberculosis of urinary tract in women, [Wynne] (20) 670
  - polynuclear, normal, proteolytic power of, [Fiessinger & Clogne] (40) 2073
- LEUKOCYTOSIS and sodium succinate, effect of subcutaneous administration on leukocyte content of blood, [Hammett & others] *31
  - postoperative, in dog, nature of, [Krumbhaar] (8) 847
- LEUKORRHEA, complement fixation reaction in, [Smith & Stone] *1418
  - lactic acid bacilli in, [Block & Llewellyn] *2025
- LIABILITY in personal injury case for mistake of surgeon, 66—Ml
- LIFE, riddle of, as seen by chemist, [Levene] 308
- LIGAMENTS, suture of tendons and, over gap, [Most] (80) 1387
- LIGHT, colored, influence on flies, [Galaine & Houlbert] (43) 1476
  - white and colored, biologic curative action of, [Milani & Capelli] (77) 1387
- LIGHTNING Hot Drops misbranded, 1192—P
- LIMBS: See also Arm; Extremities; Leg
- LIMBS, artificial, for soldiers, 1456
  - artificial, to facilitate vitalization of, [Alevoli] (73) 1916
  - wounds of, in war, treatment at base hospital, [Magni] (73) 1656
- LIMESTONE Phosphate, 582—P
- LIP, carbuncle of upper, [Bradburn] (103) 1381
- LIPASE, gastric, existence of, [Hull & Keeton] (51) 1649
- LIPEMIA in rabbits during anemia from hemorrhage, [Ellermann & Maulengracht] (83) 1306
- LIPOIDS, blood, in anemia, [Bloor & MacPherson] (54) 314
  - blood, in diabetes, [Joslin & others] *375
  - defensive, [Urra] (92) 247
  - products from degeneration of nerves, [Shionoya] (81) 1835
- LIQUID air and electrolytic oxygen for anesthetic purposes, [McLean] 1647—ab
- LIQUOR, illegal prescribing of, 1292—Ml
- LITHOPEDION, full term ectopic gestation retained 18 years, operation and recovery, [Peterson] (80) 1112
- LIVER abscess, amebic, emetin alone in, [Brocq & Augé] (59) 1037
  - abscess and purulent pleurisy, differential diagnosis of, [Moreau] (49) 156
  - abscess, emetin in, [Delille & others] (26) 1302
  - abscess, mistakes in diagnosis of, [Odriozola] (85) 247
  - and heart disease, ascites from, in child under 3, [Martelli] (59) 761
- LIVER cancer in children, [Crozer] 145—ab
  - catalase content of, effect of emotions on, [Burge & Burge] (9) 589
  - cirrhosis from inherited syphilis in 2 children, [Cozzolino] (58) 761
  - cirrhosis in child with inherited syphilis, [Pentagna] (61) 2156
  - disease, early diagnosis by functional tests, [Gregersen] (96) 1040
  - disease, functional, diagnosis of, [McNeil] (174) 193
  - echinococcus cyst in, perforating into pleura, [Allende & Rosso] (8) 1120
  - in shock and peptone poisoning in dogs, [Weil] (11) 1910
  - insufficiency of kidneys and, acute, [Marklen] (56) 2004
  - myeloma with metastasis to spleen and, [Pepper & Pearce] (114) 1199
  - rôle of hepatic tissues in acute anaphylactic reaction, [Manwaring & Crowe] (79) 1297
  - syphilis of, tertiary, [Furno] (83) 1039
- LIVON, Charles, death of, 1019
- LOCALIZATION of Bullets: See Foreign Bodies
- LOCOMOTOR ATAXIA: See Tabes Dorsalis
- LOEWI test, recognition of pancreatic insufficiency with reference to, [Decker] (81) 70
- LONDON, health of, 748
  - letter, 54, 131, 222, 301, 396, 483, 579, 747, 839, 927, 1099, 1371, 1455, 1551, 1633, 1721, 1311, 1898, 2057, 2134
- LOUISIANA medical news, 297, 575, 1808, 2131
  - reciprocal resolutions of, 665
  - state board June examination, 844
- LOW'S Worm Syrup, 225—P
- LUETIN Reaction: See Reaction, Luetin
- LUMBER company, power to contract for services of physician, 1027—Ml
- LUNGS and pleura in acute articular rheumatism, [Mollard & Favre] (37) 73 (37) 73
  - blood in, 1614—E
  - calcification of, [Harbitz] (88) 1918
  - complications following operations under anesthesia, [McKesson] 1647—ab
  - Compression: See Pneumothorax, Artificial
  - distomiasis, human, caused by paragonimus westermanni, [Nakawaga] (51) 1110
  - edema, acute, [Kruglevsky] (110) 2007
  - edema in pneumonia, treatment of, [Bastedo] *800
  - examination of, of recruits, [Lopez] (66) 598
  - foreign bodies in, extraction of project[illegible] con-trol, [illegible] 20
  - foreign [illegible] 39 cases, [illegible] 317
  - Hemorrhage: See Hemoptysis
  - mycosis of, from Brazilian oidium, [Magalhães] (81) 2006
  - phenomena in anaphylaxis, 1352—E
  - resection of lobes of, [Robinson] *355
  - surgery of pleura and, in war, [Moynihan] 1541—ab
  - syphilis, [Castex & Denis] (88) 158, [Leredde] (49) 1635
  - syphilis, roentgen diagnosis of, [Watkins] (17) 1908
  - Tuberculosis: See Tuberculosis, Pulmonary
  - tumor, primary malignant, [Packard] (12) 1029
  - ventilation and carbon dioxid of blood, 1789—E
  - vital capacity of, and its relation to dyspnea, [Peabody & Wentworth] (35) 1196, 1528—E
  - vital capacity of, relation to clinical condition of patients with heart disease, [McClure & Peabody] *1954
  - wounds, immediate surgery in, 747
  - wounds of thorax and, emergency treatment of, [Morelli] (51) 855
  - wounds, penetrating, treatment of, [Delore & Arnaud] (25) 317
  - wounds, tardy symptoms after, [Devic & Cordier] (24) 317
- LUPUS, artificial heliotherapy in surgical tuberculosis and, [Reyn & Ernest] (97) 78

LUPUS, focal reaction after injection of tuberculin in, [Fønss] (143) 500

LYMPH NODES, tuberculosis of, 568—E
  tuberculosis of, frequency, origin and relation to other tuberculous lesions, especially pulmonary, [Harbitz] (64) 591
  tuberculosis of, radiotherapy of, [Ratera & Ratera] (67) 856

LYMPHADENIA, aleukemic, consecutive to mumps, [Fichera] (69) 1835

LYMPHATIC apparatus, primary diseases of, [Nakamura] (73) 1572

LYMPHOCYTES, action of immune serums on small thymus cells and, [Pappenheimer] (50) 590

LMPHOCYTOSIS in syphilitics, [Mayer & Gourdy] (95) 1121

LYMPHOGRANULOMATOSIS, [Cole] *341

LYMPHOSARCOMA, treatment by roentgen ray and other methods, results of, [Holding] (70) 70

M

McLEAN-VAN SLYKE method for determination of chlorids in blood, modification of, [Foster] (86) 1198

McLEAY, J. A., Georgia board investigates charges against, 1550

MAGNESIUM and calcium metabolism, studies in, [Givens] (65, 67) 850
  micromethod for determination of calcium and, in blood serum, [Marriott & Howland] (87) 2000
  sulphate, subarachnoid injections of antitetanic serum and, in tetanus following laparotomy for ectopic pregnancy, [Casler] 2143—ab

MAINE medical news, 298, 1717
  state board March examination, 1996

MAISON D'AMERIQUE (American building), 2057

MALARIA acquired in Macedonia, features of, [Carnot] (45) 854
  amnesia in, [de Brun] (45) 2154
  and hookworm, 746
  at Salonica, [Marchoux] (16) 1115
  autochthonous, 1550
  controlling, 1482—ab
  danger of yellow fever and, getting foothold in France, [Blanchard] (35) 244
  erythema in, [de Brun] (25) 1116
  gastric cancer simulating, [Rovsing] (88) 1836
  granulation of blood in, cause of, [Hirschfeld] (49) 1118
  hemoglobinuria in, contracted in Macedonia, [Delille & others] (25) 1302
  herpes with, [Garin & Descos] (51) 760
  in Gold Coast colony, West Africa, [Macfie & Ingram] (1) 672
  in infants, [Smith] 2208—ab
  indigenous, in England, 1372
  initial symptoms of, [Mauban] (29) 2211
  intravenous injection of quinin in, [Rogers] (7) 1473
  intravenous injections of quinin bihydrochlorid in, [Stephens & others] (2) 1299
  Italian colony for children with, 1644—ab
  mastitis in soldiers with, [Garin & Coullard-Descos] (42) 1569
  microscopic histology of, in Salonika force in 1916, [Dudgeon & Clarke] (20) 757
  oriental, seen at Marseilles, [Ravout & others] (60) 1386
  pernicious, simulating tetanus, [Majoli & Paoletti] (66) 2005
  quininized serum in, [Hayem] (42) 156
  roentgenotherapy of, [Pais] (57) 2156
  Saloniki type of, treatment of, 926
  serotherapy of, [Sotiriades] (110) 1659
  soldiers convalescing from, 397
  subtertian cerebral, quinin and galyl in, [Falconer & Anderson] (21) 1567
  suprarenals in, [Garin & others] (55) 1915
  tartar emetic in, 1556, [Falconer & Anderson] (14) 2210
  tartar emetic in, malignant tertian rings in blood during intravenous injections, [Greig] (14) 409
  tertian, intramuscular injections of amylopsin and trypsin in, [Stephens & others] (3) 1299
  tertian, intramuscular injections of quinin alkaloid in, [Stephens & others] (4) 1299
  tertian, intramuscular injections of quinin bihydrochlorid in, [Stephens & others] (8) 672
  treatment of, [Stephens & others] (7, 8) 672, (2, 4) 1299

MALIGNANT Growth: See Cancer; Tumor

MALINGERING, differentiation between factitious and real diseases, [Haslebacher] (56) 1834
  factitious affections, [Ascarelli & others] (79) 157
  in military circles, [Ascarelli] (68) 246
  Italian physician condemned for aiding, 395
  tests used to detect, [Keiper] 1560—ab

MALPRACTICE in treatment of fracture, insufficient evidence of, 402—Ml
  insufficient evidence of, in treatment of injured wrist, 1732—Ml
  limitation of actions for, especially for causing argyria, 845—Ml
  notice must be given to maintain action for, 143—Ml
  sufficient complaint and evidence in action for, 937—Ml

MANDIBLE: See Jaw

MAPS and highways, French signs of, [Kelley] 1818—C
  reading of, and military sketching, [Reno] *1254

MARASMUS, blood serum in, [Freeman] 146—ab
  pancreatic vitamin in, [Eddy & Roper] (3) 1028

MARRIAGE annulment for fraudulently concealed epilepsy, 752—Ml

MARYLAND medical news, 49, 218, 298, 392, 480, 575, 658, 744, 836, 922, 1017, 1096, 1186, 1283, 1367, 1452, 1546, 1630, 1809, 1895, 1987, 2131
  state board, June examination, 1821

MASKS for facial wounds, [Wood] (22) 410

MASON, Nuxated Iron, at Pacifist meeting in Chicago, 829—E

MASSACHUSETTS medical news, 219. 392, 922, 1017, 1096, 1367, 1547, 1717, 2054

MASSAGE, light and heat as aid to, [Alquier] (37) 1303

MASSEURS, blind, information wanted about, 140

MASTIC and potassium permanganate tests of cerebrospinal fluid of insane, [Lowrey] (11) 489
  gum, test, mechanism and significance of, [Immerman] *2027

MASTITIS in soldiers with malaria, [Garin & Coullard-Descos] (42) 1569
  thread or filiform drainage in, [di Sant' Agnese] (62) 761

MASTOID operation in acute otitis media, indications for, [Dench] *878
  operations, fatalities in, [Borries] (53) 2212

MATHIEU, Albert, death of, 397, (27) 1568

de MAUPASSANT, Guy, paresis of, 1555

MAXILLARY BONE: See Jaw

MEAL hours, modification of, 136, 398

MEASLES, different character of, in town and country, [Camescase] (25) 72

MEATLESS days, discontinuation of, in France, 1813

MEDAL for public health services, 300

MEDIASTINUM, diseases of, differential diagnosis of, [Blair] (17) 754
  new growths of, radium in, [Burnam] *989
  sarcoma of, and hemorrhagic pleurisy, [Comby] (36) 1204

MEDICAL Corps, Canadian, officers wounded, 1719
  Corps, height requirements for, 207
  Corps of British Army, casualties in, 45—E
  Corps, orders to officers of, 47, 129, 208, 295, 391, 479, 572, 656, 740, 832, 920, 1014, 1091, 1182, 1275, 1361, 1446, 1541, 1621, 1709, 1801, 1889, 1982, 2049, 2126
  Education: See Education, Medical
  instruction at front, 2135
  military efficiency, investigation of, 1009—E
  mobilization and war, 45, 127, 206, 388, 477, 571, 652, 736, 830, 917, 1011, 1086, 1177, 1269, 1355, 1437, 1532, 1615, 1702, 1794, 1881
  Officer, The, [Osborne] 1615
  officers and draft, qualifications for, 128
  officers, effect of rank on duties and responsibilities of, 1788—E
  officers, exchange of, between France and Germany, 1273
  officers for army, exhaustion of supply of, 839
  officers, giving rank to which they are entitled, 292
  officers in active service, 1702
  officers, increased rank and more authority for, 1612—E
  officers, instruction of, 1442
  officers needed by Navy, 1977
  officers ordered to active duty, 47
  officers, payment of, 736
  officers, qualifications for, and draft, [Blumer] 306—C
  officers, rank of, 388
  officers training camps, [Munson] 1538—ab
  officers training camp at Fort Benjamin Harrison to be discontinued, 1702
  officers training camp instructors confer, 1271
  officers training camp, 3 months of, 1178
  officers with relative rank of lieutenant, new ruling affecting appointment of, 222
  Reserve Corps, accepting commission in, 289—E
  Reserve Corps, commissions in, 206
  Reserve Corps, completion of, internship of commissioned officers, 1360
  Reserve Corps, conference of examiners for, 1355
  Reserve Corps, delay in issuing commissions, 127
  Reserve Corps, disposal of commission on receiving higher one, 1463
  Reserve Corps, enlisted, medical students and hospital interns may join, and be discharged by local boards from service in National Army, 830
  Reserve Corps, letter from member of, in France, 2046
  Reserve Corps men on active duty, 477
  Reserve Corps, number in, 1355
  Reserve Corps Officer, salary and allowances of, 1642
  Reserve Corps, orders to officers of, 129, 208, 295, 390, 479, 572, 655, 740, 833, 920, 1014, 1091, 1182, 1275, 1361, 1446, 1622, 1710, 1802, 1889, 1982, 2049, 2126
  Reserve Corps, physicians recommended for commission in, 389, 477, 572, 652, 919, 1269
  Reserve Corps, promotions in, 46
  Reserve Corps, reporting for duty before receipt of commission, 571
  Reserve Corps, St. Louis contribution to, 1014
  Reserve Officers at West Point, 2121
  Reserve Officers, commissions of, 1355
  Reserve Officers, enlargement of training camps for, 294
  Reserve Officers, exemption of, from draft, 20
  Reserve Officers from training camps muster in National Guard, 206
  Reserve Officers given 5 days to report, 1530—E
  Reserve Officers, increased personnel at training camps for, 571
  Reserve Officers, official publications for, 128
  Reserve Officers on active duty, 652
  Reserve Officers ordered to active duty, minimum equipment for, 571
  Reserve Officers ordered to duty, baggage for, 477
  Reserve Officers, salary of, 294
  Reserve Officers, standard height and weight for, 652
  service abroad, observations of, [Huntington] 1103—C
  service in British area on western front, [Goodwin] *119
  service with American expeditionary forces, directors for, 1794
  staff of United States on British front, 579
  staff officers, announcement of, 1270
  supplies for Russia, 737

MEDICINAL plants, scarcity of, 182—ab

MEDICINE, adequate medical service of future, [Gier] *1041
  business corporation and manager giving, 1465—Ml
  experiment in, method of, 1610—E
  in China, [Wu Lien Teh] 250—ab
  influence of war on medical science, [Ewing] *249
  insufficient information under statute defining practice of, 1905—Ml
  meaning of terms "physician" and, 1465—Ml
  practice of, and trained nurses as anesthetists, 1731—Ml
  practice of, by bishop or preacher in violation of city ordinance, 65—Ml
  preventive, and hygiene, 229
  progress achieved since Civil War, 570—E
  proprietorship in, handicap of, [Mundell] 1818—C
  recent surgery and, in Germany, [Leroy] (40) 1303
  specialization in, [Rovsing] (120) 416
  status of surgery and, 583
  textbooks dealing with advance of surgery and, during war, [Martin] 388
  unrestricted practice of, [van Rijnberk] (76) 1572

MEDULLA, mammalian, perfusion of, (action of ethyl alcohol), [Hooker] (66) 942

MEGACOLON, acquired, operative treatment for, [Arana] (64) 856
  congenital megarectum and, [Bard] (28) 1568

MELANCHOLIA, dosage of bromids in epilepsy and, [Bernoulli] (67) 1037

MELANOSARCOMA: See Sarcoma, Melanotic

MELVIN, Alonzo Dorus, chief of Bureau of Animal Industry, death of, 2133

MEMORY, loss of, from injury in wounded, [Oppenheim] (51) 320

MENCIÉRE'S iodoform—Peruvian balsam mixture, 1024

MENINGEAL hemorrhage in soldiers on active service, [Nobécourt] (33) 1302

MENINGISM, toxic, [Andruetto] (50) 947

MENINGITIS, [Frost] 1288—ab
  acute, in new-born, [Condat] (33) 1204
  cerebrospinal, [Randone] (64) 246
  cerebrospinal, and positive contacts, [Fildes & Baker] (81) 1831
  cerebrospinal, intramuscular serotherapy of, in children, [Fanchiulli] (62) 1916
  cerebrospinal, mode of invasion by meningococcus, [Worster-Drought & Kennedy] (31) 2073
  clinical and laboratory experience with, in New York City, 7 years of, [Du Bois & Neal] (26) 1295
  epidemic cerebrospinal, [Longo] (70) 322
  epidemic cerebrospinal, bacteriologic diagnosis and serotherapy of, [Paleani] (59) 1834
  epidemic cerebrospinal, diagnosis and treatment of, [Hagen] (112) 2078
  epidemic, diagnosis and serotherapy, [Hekman] (87) 323
  epidemic, forms of, with purpura, [Netter] (54) 2004
  epidemic, in young children, [Korteweg] (110) 160
  epidemic, mixed infection in, [Nether] 914—ab
  epidemic, mixed infection with pneumococcus in, [Mathers] *1778
  epidemic, mode of infection, and means of prevention and specific treatment of, [Flexner] *639, *721, *817
  epidemic, treatment of, [Indelli] (71) 1387
  hemorrhagic, from infection with anthrax bacillus, [de Jong] (79) 1572
  in London, 660
  in naval camp, 52
  infectious, study of 27 cases in 586 necropsies, [Graves] (48) 1910
  influence, [Tobler] (52) 760
  meningococcus, in new-born, [Miller] 235—ab

MENINGITIS, meningococcus, recovery of 2 children from, [Schoondermark] (114) 2078
  mumps, [de Massary & others] (19) 594
  otogenous, recovery from, [Quix] (82) 949
  otogenous, severe, cerebrospinal fluid constantly sterile in, [Borries] (98) 764
  pneumococcal, [Worster-Drought & Kennedy] (17) 1740
  posterior adenoiditis source of, [Rosenthal & Cheville] (43) 2151
  premeningitic rash of cerebrospinal fever, [Symonds] (61) 674
  serotherapy of, [Capogrossi] (64) 2156
  standardization and administration of antimengococci serum, [Amoss] *1137
  typhoid, acute, [Bonnamour & Macrygenis] (40) 1569
  typhoid, report of case, [Bayne-Jones] (14) 312
MENINGOCOCCUS, action of spinal fluid in stimulating growth of, [Shearer] (32) 2073
  agglutination of, simple method of, [Tunnicliff] *786
  and pneumococci in meningitic fluid, [Netter & Salanier] (31) 1302
  carriers, application of macroscopic slide agglutination in search for, [Krumwiede] *358
  carriers, local treatment of, with antiseptics, [Fildes & Wallis] (4) 1652
  in blood, [Raffaelli] (108) 677
  meningitis in new-born, [Miller] 235—ab
  of Weichselbaum, [Hort] (8) 1473
  skin lesions due to, 651—E
  varying response of, to different antiserums, [Nicolle & others] (30) 1653
MENINGO-ENCEPHALITIS in occipital region, [Kirmisson & Tretiakoff] (34) 1204
MENSTRUATING surface, fundal hysterectomy to reduce, [Dickinson] 1293—ab, (1) 1998
MENSTRUATION, preservation of function in double suppurative disease of tubes and chronic metritis, [Polak] *1938
  quantity of blood lost at, [Lahille] (15) 317
  precocious, [Lucas] 148—ab
MENTAL disease in Canadian army, problem of, [Farrar] (82) 1650
  diseases in soldiers, [Hoven] (43) 2073
  hygiene, state organization for, [Copp] *606
  tests for soldiers, 207
MENTHOL from Japan, 649—ab
MERCURY and inunction, 1556
  anuria due to, [Millian & de Saint-Avid] (56) 1385
  combinations in organism, [Carles] (51) 412
  oxycyanid in abortive treatment of gonorrhea, [Colombino] (75) 157
  poisoning, [Motter] 140—C
  poisoning, treatment of, [Weiss] (98) 1032
  stomatitis, pathogenesis, prophylaxis and treatment, [Favre] (34) 1302
  vapor quartz lamp, experiences with, [Sokolow] (57) 245
MESENTERIC vessels, thrombosis and embolism of, [Hedlund] (124) 2008
MESENTERY, tumors of, [Gilberti] (70) 2006
MESOCOLON, transverse, rôle of, following gastro-enterostomy, [Roeder] *1320
MESOPOTAMIA expedition, medical breakdown in, 301
  tragedy, lesions of, 287—E
METABOLISM and war diet, 1173—E
  basal, and minute volume of respiration of patients with cardiac disease, [Peabody & others] (36) 1196
  problems of immunity and, in dermatology, [Blooch] (48) 1118
  relation of sex glands to, [Murlin & Bailey] (171) 1113
  twenty-four hour, of 2 normal infants, and total energy requirements of infants, [Talbot] (2) 311
METAL clips, absorbable, as substitutes for ligatures and deep sutures in wound closure, [Andrews] *278, [Kane] 663—C
METAMERES, sensory, in hind leg of cat, [de Boer] (100) 1480
METRITIS, chronic, preservation of menstrual function in double suppurative disease of tubes and, [Polak] *1938
METROPOLITAN Life Insurance Company offers vital statistics, 1811
METORRHAGIA: See Uterus, Hemorrhage
MEXICO, barbarities in, [Acker] 1818—C
MICA, sheet, as protective, [Kane] 140—C
MICHIGAN medical news, 49, 219, 481, 575, 923, 1018, 1096, 1368, 1718, 1809, 1987
  state board, May examination, 1025
  state board, June examination, 1025
  State Board of Registration, credit for German not allowed by, 570—E, [Burr] 751—C, [Robinson, Peters & Burr] 842—C, [Phillips & McDermott] 933—C
MICROBIOSIS and normal parasitism, [Galippe] (26) 945
MICROFILARIA nocturna, periodicity of, and report of case of filariasis, [Yorke & Blacklock] (1) 1299
MICROZONE Medicine Company preying on soldiers, 828—E
MIGRAINE and chronic intestinal stasis, relationship and treatment, [Einhorn] *1315
MIL, what is a mil? 1021
MILITARY activities, relation of psychology to, [Yerkes] (79) 1650
  Hygiene: See Hygiene, Military; Sanitation
  laboratories, [Russell] 1538—ab
  Medical Association, Senior, organization of, 1014
  medical efficiency, investigation of, 1009—E
  medical information for physicians, American Medical Association, pamphlets on, 830
  orthopedics, department of, 736
  service and life insurance policies, [Piper] 227—C
  service, exemptions from, necessary revision of, [Galli] (78) 413
  service in Italy, physical disqualification for, 1091
  sketching and map reading, [Reno] *1254
  Surgery: See Surgery, Military
  training, compulsory, 132
MILK, abnormalities in, due to stage of lactation, 1613—E
  and coal card plague, 2056
  another word about, 289—E
  antineuritic properties of, 40—E
  bacillus abortus bovinus in certified, [Fleischner & Meyer] (1) 1028, 1879—E
  breast, restoration of maternal nursing after 16 days of complete interruption, [Southworth] 235—ab
  card for children and sick, 2057
  condensed, exportation of, 2086—ab
  cost of market milk, 1176—E
  effect of high prices on consumption of, 1880—ab
  fats, composition of, 1529—E
  germ content of, factors affecting, 1528—E
  goat's, availability of, in place of cow's milk, 123—E
  grading, 10 years experience with, [Smyth] *1772
  hemolytic substances in heated milk and in milk cultures of bacterium welchii, [Ford & Lawrence] (18) 670
  human, collection and production of, problems connected with, [Hoobler] 421
  human, production of, and diets containing various forms and quantities of protein, [Hoobler] 311—ab
  human, production of, effect of diets containing various forms and quantities of protein on, [Hoobler] (4) 588
  ordinance, formulation of, 1633
  powder, special form of, in infant feeding, [Blumenau & Petipa] (103) 2077
  problem, city, 646—E
  production, 1267—E
  production and distribution, 1974—E
  production and maternal diet, 730—E
MILK production, comparative economy of Jersey and Holstein, 1792—E
  pure raw, necessity of, [Chapin] *886
  scarlet fever and, [Djørup] (118) 2078
  sour, skim and pasteurized, 289—E
  tubercle bacilli in breast milk of tuberculous women, [Wang & Coonley] *531
  tubercle bacilli in, Petroff's method of isolating, [Stewart] (52) 2149
  vacuum bottles for, [v. Bergen] (105) 676
MILLING, crisis in, 483
MINERAL excretion, effect of hydrochloric acid on, in dogs, [Steble] (69) 850
  metabolism of experimental scurvy of monkey, [Howard & Ingvaldsen] (45) 314
  Water: See Water, Mineral
MINNESOTA experiment and graduate education in clinical branches, [Lyon] *1307
  medical news, 49, 298, 576, 923, 1368, 1452, 1547, 1718, 1987, 2054
  state board April examination, 229
  state board August and October examinations, 2205
  state board June examination, 1376
MINOR, physician rendering service to, at father's request, 1558—Ml
MIOSTAGMIN reaction in rats with malignant tumors, [Roffo] (95) 159
MISSISSIPPI medical news, 49, 923
  state board, June examination, 1464
  Valley Medical Association, election of officers, 1455
MISSOURI medical news, 49, 131, 576, 741, 1283, 1452, 1631, 1718, 1809, 1895, 1987, 2131
  state board June examination, 1820
  state board March examination, 62—ME
MONGOUR, Charles, death of, 222
MONSTROSITY, fetal, tint of amniotic fluid as sign of, [Costa] (69) 322
MONTANA medical news, 219, 298, 393, 836, 1186, 1452, 1809, 2054
MORBIDITY under prohibition, [Schou] (119) 416
MORPHIN and total opium alkaloids, comparative influence on renal colic, [Macht] (80) 151
  before operations and for wounded, 1897
  in China, 1323—ab
  tyramin as adjunct to, in labor, [Barbour] *882
MORTALITY record, low, New York state makes new record, 890—ab
  Statistics: See Statistics, Vital
MOSQUITOES and epidemiology of acute poliomyelitis, [Noguchi & Kudo] (59) 239
  exterminating, alternating method of, 1993—ab
MOTHERHOOD welfare work in factories, 1813
MOTHERS, welfare of children and, in Ireland, 1905—ME
MOTHER'S SALVE Mother's Remedy misbranded, 1192—P
MOTOR boats, carbon monoxid poisoning in, [Harbitz] (119) 1746
MOUTH, auscultation through, [Notari] (51) 1118
  cancer of, treatment by dentist under direction of physician, 2142—Ml
  infections and anemias, [Graves] 2207—ab
  infections and arthritis, [Gibbes] 2207—ab
  infections and cardiovascular system, [Brown] 2207—ab
  infections and nervous system, [Block] 2207—ab
  infections, chronic, roentgenoscopic and microscopic studies of tissues involved in, [Black] *599
  infections, menace of, [Osborne] *1313
  influence of maternal oral sepsis on fetus and marasmic children, [Pierrepont] (18) 154
  spray infection, importance of, 1268—E
MOVING pictures and eyes, [Bahn] (107) 1381
  pictures and other illustrations for Army Medical Department, 2121
  pictures, records of war neuroses, [Williams] 2145—ab
MUMPS: See Parotitis
MUNITION workers, danger to, from trinitrotoluene, 1353—E
  workers, health of, 222, 579
  workers, women, care of, 1811
MURPHYSBORO, patriotic physicians of, 1532
MUSCLE activity, effect of, on interchange of fluid between blood and tissue spaces, [Scott & others] (5) 1735
  contraction, nature of, 2118—E
  dextrose in muscular tissue, quantitative estimation of, [Hoagland] (53) 314
  fatigue, effect of epinephrin on, [Gruber] (16) 238
  function of muscular tissue in urea formation, [Hoagland & Mansfield] (87) 1198
  glycolytic properties of muscular tissue, [Hoagland & Mansfield] (88) 1198
  hamstring, transplantation of, for quadriceps palsy, [Kleinberg] (23) 312
  is urea formed in, 1791—E
  osteomas of, [Policard & Desplas] (81) 675
  paralyzed, nerve regeneration and neurotization of, 824—E
  paralyzed, neurotization of, by muscle grafting, [Nutt] *2082
  plastic operations after wounds of face, [Nikolsky] (86) 763
  reaction to pinching, over pleuropulmonary tuberculous lesion, [Loeper & Codet] (51) 1205
  sign, spontaneous, of tabes, [Cominelli] (117) 677
  tonus, striated, and innervation, research on, [van Rijnberk] (127) 499
MUSCULAR movements and contractures, unintentional, after war wounds, [Ricca] (73) 2005
  work and blood, 2044—E
MUSEUM, war, at College of Surgeons, 1633
MUSHROOM poisoning, fatal, remission for 9 days in case of, [Gautier & Saloz] (47) 1117
  poisonings in Geneva district, [Roch] (44) 1117
MUSTARD gas, poisoning from, clinical manifestations and treatment of, [Mandel & Gibson] *1970
MUSTEROLE poisoning, case of, [Macht] *901
MUTISM, inhalation of ether in dysphonia, tachypnea and, of hysteric origin, [Trocello] (81) 1039
MYCOSIS of lungs from Brazilian oidium, [Magalhães] (81) 2006
MYELITIS, acute ascending toxic (or degenerative), [Globus] *186
  salvarsan and neosalvarsan causing, fatal case, [McCaskey] *1960
MYELOMA with metastasis to liver and spleen, [Pepper & Pearce] (114) 1199
  multiple, with chronic nephritis, showing Bence-Jones protein in urine and blood serum, [Jacobson] (78) 151
MYOCARDITIS and rheumatismal aortic valvular disease, [Kouwenaar] (128) 499
  localized in interventricular septum with peculiar anomalies in electrocardiogram, [Fridericia & Møller] (152) 680
MYOCARDIUM, possible electrocardiographic sign of change in, [Wells & Goodall] (8) 1201
MYOMA of uterus, laparotomy for, immediate and remote results, [Lindquist] (77) 1306
MYOPATHY, cardiovascular lesions in 2 cases of, [Navarro & Correas] (83) 414
  primary, nervous system and endocrine glands in, [Navarro & Correas] (68) 949
MYOPIA, anterior, or conical cornea, [Jackson] *793
MYOSITIS, progressive multiple ossifying, [Johannessen] (97) 763
  purulenta acuta caused by bacillus typhosus, [Terada] *2101
  purulenta tropica, abscesses in, etiologic agent and localizing factor of, [Walker] (35) 1030
MYXOSARCOMA of soft palate, [Greig] (39) 494
NAILS, disease of, roentgen treatment of, [Meylan] (47) 2212

N

- NAME, advertising under other than own, to practice medicine, 845—Ml
- NARCOTICS: See Drugs, Habit-Forming
- NASOPHARYNGEAL disinfection by hypochlorites, 651—E
- NATIONAL Board examination, 1188, 1455
  - Board of Medical Examiners, meeting of, 1285
  - Board of Medical Examiners, next examination of, 578
  - Board of Medical Examiners, report of 2nd examination of, 487
  - Board of Medical Examiners, report of 3rd examination of, 1642
  - Safety Council meeting, 838
  - tuberculosis conferences, 1188
- NAVAL Medical Corps, promotions in, 389
  - Reserve Officers, higher grade for, 572
- NAVY, medical department, results of examinations for, 487—ME
  - medical officers needed by, 1977
  - ration, [Belli] (49) 1569
  - surgeon, work of, [Braisted] 1538—ab
- NEBRASKA medical news, 393, 1283, 1547, 1809, 2054
- NECROPSY sections, method for filing, [Robinson] *2037
- NECROSIS, production of urea in tissues in course of, and consecutive azoturia, [Ameuille] (20) 594
- NEGROES, lower suicide rates than white persons, 1254—ab
  - medical education for, 2133
  - mortality among, alarming, 1085—ab
  - mortality rates among babies, 1354—ab
  - prophylactic therapy of rachitis in negro community, [Hess & Unger] *1583
  - Schick test in, [Wright] (30) 1030
- NEODIARSENOL, toxicity of, [Zeisler] *2181
- NEOSALVARSAN exanthem cured with epinephrin, [Nägeli] (70) 1743
  - fake, factory, 930—P
  - fake, identifying, 1021—P
  - myelitis due to, fatal case, [McCaskey] *1960
- NEPHRECTOMY for renal tuberculosis, end-results *of*, [Lower & Shupe] (115) 1829
- NEPHRITIS, acidosis in diabetes and, [Christie] (50) 407
  - acute, and renal organotherapy, [Gil y Ortega] (107) 1659
  - acute, in troops, evolution and prognosis of, [Sorel] (72) 496
  - blood lipoids and acidosis, 1976—E
  - blood lipoids in, [Bloor] (95) 1198
  - chronic, effect of thyroid medication on basal metabolism, renal function and nitrogen balance in hypothyroidism and, [Bowen & Boothby] (32) 2070
  - chronic, multiple myelomas with, showing Bence-Jones protein in urine and blood serum, [Jacobson] (78) 151
  - chronic parenchymatous (nephrosis) nature and treatment of, [Epstein] *444
  - chronic, physiopathology of, [Facio] (103) 159
  - dietetic treatment of, [Chace & Rose] *440
  - Edebohls' operation in, in children, [Morse] *525
  - elimination of aromatic oxyacid in, [Hara] (87) 77
  - etiology and development of, [Ophüls] *1223, 1819—C
  - in children, studies in, [Hill] (3) 1562
  - parenchymatous, edema in, causation and alleviation of, [Epstein] (2) 2068
  - postoperative, causes of, [Ruddell] 1647—ab
  - stomach symptoms in, with retention of nitrogenous waste products in blood, [Chace] (3) 67
  - traumatic, [Castañeda] (84) 158
  - trench, investigation of, by phenolsulphonephthalein, [Auld] (2) 1566
  - trench, later stages and treatment, [Clarke] (1) 1114
  - trench, with uremia but no edema, [Eustachio] (63) 948
  - urea excretion in, [McLean] *437
  - urea retention in, mechanism of, [McLean] (51) 590
- NEPHROPATHY, experimental, in dog, lesions produced by injection of bacillus bronchisepticus into renal artery, [Winternitz & Quinby] (77) 151
- NEPHROPEXY, ultimate results in cases of symptomatic nephroptosis, [Clark & Block] (35) 1736
- NEPHROPTOSIS, symptomatic, ultimate results of nephropexy in, [Clark & Block] (35) 1736
- NERVE, auriculotemporal, resection of, in parotid fistulas, [Dieulafé] (101) 676
  - blocking, alcohol, in causalgia, [Pitre & Marchand] (60) 1477
  - cells, anatomic changes produced in, by toxin of B. diphtheria, [Simmons] (49) 490
  - centers, difference in results of injury to, in war and peace, [Camus] (88) 675
  - centers, localization of, by effects of skull wounds, [Marie & others] (64) 674
  - cranial, associated injury of last 4, [Sicard & Rimbaud] (55) 1385
  - degeneration of, lipoid products from, [Shionoya] (81) 1835
  - exact coaptation of nerve fibers in anastomosis of, value of, [Barile] (85) 1744
  - external popliteal, paralysis of, disturbance in gait with, and device for correction, [Privat & Belot] (43) 320
  - iliohypogastric, and radical cure of inguinal hernia, [Moschcowitz & Neuhof] (37) 313
  - oculomotor, paralysis of, with contralateral hemiplegia, [Hassin] *2169
  - optic, disease of, originating in nose, [Galtung] (79) 1306
  - peripheral, degeneration *of*, [Manalang] (73) 1912
  - peripheral, injuries to, and treatment, [Moynihan] (1) 2002
  - peripheral, operative treatment of, after loss of substance, [Huber] (70) 1472
  - radical, technic for exposing in upper arm, [Putti] (77) 1656
  - roots, inflammation of, [Leri] (55) 2004
  - roots, intradural, relative amount of sheathing substance in corpus callosum and, [Koch & Koch] (62) 850
  - sciatic, exercises that stretch, [Roussy & others] (61) 1477
  - sensory, effect of stimulation of, on rate of liberation of epinephrin from suprarenals, [Stewart & Rogoff] (32) 1909
  - severed, restoration of, [Duroux & Couvreur] (82) 675
  - supply, ulnar and median, abnormal, in hand, [Harris] (30) 2073
  - wounds involving, in war, radiotherapy for, what can be expected from, [Brodier & Gérard] (47) 1204
  - wounds with much loss of substance, treatment *of*, [Mauclaire] (89) 675
- NERVOUS and mental conditions in present war, [Auer] (81) 1650
  - diseases, causes of, [Langelaan] (95) 77
  - diseases, functional, principle of psychic insolation in, [Landau] (17) 317
  - disturbances, reflex, association of, with hysteria in wounded, [Babinski & Froment] (96) 676
  - reflex phenomena, so-called, in war neurology, [Valobra] (76) 1387
  - symptoms of vascular origin, [Queirolo] (56) 760
  - system and endocrine glands in primary myopathies, [Navarro & Correas] (68) 949
  - system and oral sepsis, [Block] 2207—ab
  - system, central, chemical differentiation of, [Koch & Koch] (62) 850
  - system, central, colloidal gold test applied to diseases of, [Black & others] *1855
  - system, central, diseases *of*, absorption of phenolsulphonephthalein from subarachnoid space in, [Mehrtens & West] (42) 1737
  - system, central, organic changes in, due to focal infections, [Hall] *689
  - system, central, toxi-infection *of*, [Orr & Rows] (1) 756
- NERVOUS system, motor, influence of physical training on morphologic development *of*, [Agduhr] (86) 1917
  - system, sympathetic, hyperexcitability of, induced linear goose flesh as sign of, [Pende] (71) 1206
  - system, symptomatology of, in chronic intestinal toxemia, [Satterlee & Elridge] *1414
  - system, syphilis of, and psychoses, analysis of cases showing divergence in clinical and serologic pictures, [Lowrey] (3) 753
  - system, syphilis of, intraspinal injections in, [Sachs] *681, [Swift] *2092
  - system, syphilis of, response to treatment in, [Swift] (21) 589
  - system, syphilis of, treatment, [Haller] (62) 69
  - system, *syphilis* of, truth about intraspinal injections in, a reply, [Fordyce] *1482
  - system, *vegetative*, behavior of, during poisoning from asphyxiating gases, [Leporsky] (112) 2007
- NEURALGIA, subcutaneous injections of oxygen in, [Cetrangolo] (65) 856
- NEURASTHENIA and allied disorders in army, management of cases, 134
  - and military service, [Dewey] 400—C
  - *neurasthenic* at threshold, [Fry] *955
- NEURITIS, brachial, and sciatica, [Patrick] *2176
  - treatment of, [Sainsbury] (28) 243
- NEUROLOGISTS and psychiatrists instructed on examination of *troops*, 478
- NEUROLOGY, new fields in psychiatry and, [Salmon] (50) 1031
  - special service for psychiatry and, 389
  - war, [Editorial] (46) 74
- NEUROPATHOLOGY, familial, [Massalongo] (93) 497
- NEUROSIS problem in light of war neurology, [Imboden] (59) 1305
  - traumatic, medicolegal relations of, [Mayer] *958
  - traumatic, prisoners of war suffering from symptoms resembling, [Julliard] (57) 1304
  - war, cinematographic records *of*, [Williams] 2145—ab
  - war, etiology and treatment *of*, [Hurst] (1) 1566
  - war, literature on, 1728
- NEUZOPATH, law making no provision for systems not taught in any school, 668—Ml
- NEVADA medical news, 49, 1547
- NEVUS *syringadenomatosus papilliferus* and *granuloma*, clinicopathologic study of unusual cutaneous neoplasm combining, [Stokes] (36) 1564
- NEW HAMPSHIRE medical news, 49, 298, 1718
- NEW JERSEY medical news, 219, 1283, 1547, 1718, 2055
  - State Society contributes to Belgian relief, 1438
- NEW MEXICO medical news, 50, 1453
  - state board, July examination, 1557
- NEW YORK and Oregon law against venereal advertising, 1021—P
  - Catskill water supply, 1030—E, 1846—ab
  - Committee on Feeblemindedness, report of, 1905—ME
  - Evening Post starts campaign against venereal diseases, 387-E
  - higher educational requirements in, 62
  - Medical Journal and nostrum advertising, 1010—E
  - medical news, 50, 131, 299, 393, 481, 576, 658, 744, 836, 923, 1018, 1096, 1186, 1283, 1368, 1453, 1547, 1631, 1718, 1809, 1895, 1988, 2055, 2132
  - state board, January examination, 229
- NIKALGIN, 1024
- NITRITE and bismuth poisoning from use of bismuth subnitrate, 3 cases, [Phillips] (41) 239
- NITROBENZOL not abortifacient, [Spinner] (54) 2155
- NITROGEN, colloidal, in urine, Salkowski-Kojo test for, 1291
  - minimum ration, [Malengreau] (43) 1741
- NITROGEN, residual, in blood, with surgical kidney disease, [Sabroe] (114) 1746
- NITROUS Oxid Anesthesia: See Anesthesia, Nitrous Oxid
- NOGUCHI'S complement fixation test for syphilis, modification of, [Howard] (22) 1379
- NORTH CAROLINA medical news, 394, 659, 1097, 1810
- NORTH DAKOTA medical news, 394, 576, 745, 1896
  - state board July examination, 2205
- NOSE, cauterization of, reduction of blood pressure by, [Francis] (11) 944
  - cicatricial atresia *of*, [Jorge] (92) 1120
  - disease of optic nerve originating in, [Galtung] (79) 1306
  - focal infection in throat and, diagnosis and elimination, [Patterson] 1824—ab
  - malignant disease of throat and sinuses, radium and roentgen rays in, [Pancoast] *980
  - tuning-fork test for disease of nasal sinuses, [Oppikofer] (67) 1387
- NOSTRUM: See also Patent Medicines; Proprietary Medicines
- NOSTRUMS *in retrospect* [Lapius] 1815—P, 1992—P, 2202—P
  - misbranded, 1192—P
- NOVOCAINE, 2115
  - action of, *on* bladder, [Waddell] (73) 1788
  - identification *of*, [Sanchez] (100) 2077
- NUCLEOPROTEIDS, bacterial, [Ferrannini] (49) 596
- NURSES, badge of honor for, 893
  - public health, relative value of, in tuberculosis problem, [Heizer] 2143—ab
  - public health, to work in regions *of cantonments*, 1090
  - trained, as anesthetists and practice of medicine, 1731—Ml
  - trained, in France, 1520—ab
- NUTRITION and diet, literature on, 843
  - deficiency diseases, [Mouriquand & Weill] (57) 1915
  - disturbances in infants, [Ravenna] (67) 948
  - peas in deficiency diseases, [Poli (117) 2007
- NUTROSE, substitute *for*, [Wallis] (16) 409
- NYSTAGMUS, familial head, in 4 *generations* associated with ocular nystagmus, [Yawger] *733

O

- OAT diet, exclusive, phenol excretion in guinea pigs maintained on, [Karr & Lewis] (14) 2147
- OATMEAL gruel, 5 per cent., in infant feeding, [Levinson] (14) 1562
- OBESITY and its vicious circles, [Hurry] (16) 944
- OBSIDIONAL bacteria, pathologic manifestation of, [Sacquépée] (37) 1653
- OBSTETRICS: See also Labor
- OBSTETRICS, blood pressure determinations in, value of, [Slemons] *778
  - influenza in 1916 from standpoint of, [Chomé] (34) 243
  - thyroid in relation to gynecology and, [Marine] 236—ab
- OCCIPITAL injuries, dissociation of visual perceptions due to, with reference to appreciation of movement, [Riddoch] (2) 756
- OCCUPATIONAL Diseases: See Industrial Diseases
- OCHSNER'S solution, 1291
- OHIO medical news, 51, 131, 745, 837, 924, 1097, 1186, 1368, 1548, 1896, 2055, 2132
  - Valley Medical Association, election of officers, 1720
- OILS, fatty, production of renal changes by oil of chenopodium and, and protective action of diet on kidneys, [Salant & Bangis] (69) 240
  - vegetable, production of, 2167—ab
- OKLAHOMA medical news, 659, 1097, 1548, 2132
  - state board January examination, 844
  - state board July examination, 1464

OLD Indian Medicine Company, 750—P
ONTARIO, medical boards in, 1451
  Medical Commission, 52
  Medical Council, 52
OPERATING room, white, [Secor] (97) 1112
OPERATIONS, anaplastic, [Gamboa] (88) 1120
  soldier's right to refuse, [Norrlin] (93) 324
  sudden death day or so after apparently successful, [Brindeau] (34) 758
  surgical, on soldiers, compulsory, 838
  unnecessary, [Farmer] 400—C
  unnecessary, and incompetent surgeons, problem of, [Bevan] *161
OPHTHALMIA eczematosa, pathogenesis of, preliminary report, [Goldenburg] *104
  gonorrheal, diathermy in, [Kraft & ten Doesschate] (88) 1559
  neonatorum, 1762—ab
OPHTHALMOLOGIST and optometry, 309—Ml
OPHTHALMOLOGY in army, suggestions to improve, [Cirincione] (72) 322
  in 1917, [Terrien] (37) 1911
OPIUM addiction, signs of, 401
  alkaloids, total, and morphin, comparative influence on renal colic, [Macht] (80) 151
  and camphor, 635—ab
  in China, 1323—ab
OPTIC Nerve: See Nerve, Optic
OPTOCHIN: See Ethylhydrocuprein
OPTOMETRY and "ophthalmologist." 309—Ml
ORBIT, retaining floor of, in resection of superior maxilla, [Van Hook] *1140
ORCHITIS, gonococcus, diathermy for, [Canovas] (131) 678
OREGON and New York law against venereal advertising, 1021—P
  medical news, 51, 132, 220, 659, 1097, 1284, 1632, 2132
  state board July examination, 1503
ORGANOTHERAPY, ovarian, [Graves] *701
ORGANS, extracts of: See also under names of Individual Organs, i. e. Pituitary Body
ORGANS, extracts of, action of animal charcoal on, [Houssay] (88) 2076
ORIENT, relief of medical men in army of, 1457
ORIGIN of man, 142
ORTHOPEDIC devices for wounded, improvised, [Hug] (56) 425
  hospitals and curative workshops in England, 1372
  military, department of, 736
  reconstruction military hospital, [Mayer] *1522
  surgery, anesthesia in, [Elmer] 494—ab
  surgery at La Panne Hospital, [Lamy] (40) 318
  surgery, civil aspects of, in war, 2123
  surgery, function of, in war, 2123
  surgery, intensive treating in, for special medical officers, 1013
  surgery, what is it? 142
ORTHOPEDISTS, arrival of second American contingent in London, 1811
ORTHORADIOSCOPY, anatomic localization of projectiles by, [Costs] (77) 675
OS CALCIS: See Heel Bone
OSCILLOMETER in estimation of circulation after obstruction of arteries, [Balard] (47) 760
OSLER, Revere, death of, 830, 1531—E
  [illegible] sarcoma com- [illegible] (146) 316
  [illegible] f hip joint, operative treatment, [Ozarki] (12) 2069
OSTEOCHONDRITIS juvenilis of hip, treated and untreated, [Blanchard] *1060
OSTEOMAS, muscular, [Policard & Desplas] (81) 675
OSTEOMYELITIS, pathology and treatment of, [Colvin] 1824—ab
  symmetrical, followed by complete regeneration, [Blackburne] *2106
OSTEOPATHS in army, no action on law regarding, 583
OSTEOPERIOSITIS, typhoid, vaccine therapy for, [Weil & Chevrier] (54) 1303
OTITIS, colon bacillus, [Lund] (116) 2078
  media, acute, mastoid operation in, indications for, [Dench] *878
OTITIS, tuberculous, diagnosis of, [Lermoyez] (23) 1118
OTOLOGY, rhinology and laryngology, relation to general medicine, [Emerson] *859
OTORHINOLARYNGOLOGY, progress in, [Dufourmentel] (49) 1385
OVARITIS, sclerocystic, and chronic appendicitis, [Gomez] (89) 1120
OVARY, diseases of tubes or, complicating pregnancy, [Brindeau] (31) 243
  hematoma of, including corpus luteum cysts, [Novak] (17) 1993
  organotherapy, [Graves] *701
  pseudo-tuberculous fat granulations on, [Jayle & Bertrand] (43) 1303
  relation to uterus and breast, [Loeb] 236-ab, (67) 1113
  roentgenotherapy successful in uterine fibroids without affecting, [Pfahler & McGlinn] (5) 669
  suppuration in tubes and, vaginal operations for, [Chueco] (74) 762
  transplantation and retention of tissue after hysterectomy, [Graves] 237—ab, (168) 1113
OXIDASE reaction of cells in normal and leukemic blood, [Rosenthal] (22) 848
OXYACIDS, aromatic, elimination of, in different diseases, especially in nephritis, [Hara] (87) 77
OXYGEN and carbon dead space in man, [Pearce & Hoover] (10) 1735
  electrolytic, and liquid air for anesthetic purposes, [McLean] 1647—ab
  influence of, *inflammatory reactions,* [Amberg & others] (84) 1298
  insufflation, oral rhythmic, therapeutic value of, with description of simple apparatus, [Meltzer] *1150
  subcutaneous injection of, in neuralgia, [Cetrangolo] (65) 836
OXYHEMOGLOBIN, dissociation of, *apparatus for study of,* [MacCallus] *523
OXYURIASIS and appendicitis, [Matthiasson] (80) 1573
OYSTER, 733—E
OZENA, coccobacillus (Foetidus), of Perez, [Ward] (47) 1380

P

PACIFICIST meeting in Chicago favorites at, 829—E
PAGET'S Disease of Bones: See Osteitis Deformans
PAIN, do animals feel pain? [van Rijnberk] (108) 1745, (83) 1835
PAINE'S Celery Compound, 1638-P
PAINTERS, clinical examination of, 178—ab
PALATE, cleft, repair of, technic and reasons, [Sherman] *1966
  soft, myxosarcoma of, [Greig] (39) 494
PAN-AMERICAN Medical Congress, meeting of, 133
PANCREAS and fat absorption, 384—E
  cyst of, [Palmer] 1733—ab
  endocrine function of, and sex life of women, [Carlson] 236—ab, (165) 1113
  ferments of, specific concentration applied to, [London & Pakhotina] (89) 1479
  injuries to, following operation on right kidney, [Young & Colson] (79) 151
  insufficiency, recognition of, with reference to Loewi test, [Decker] (84) 70
  interrelation of surviving heart and, of dog in sugar metabolism, [Clark] (39) 1909
  rôle of, in glycolysis, [Lépine] *(69) 2075*
  secretion of, action of epinephrin in inhibiting flow of, [Mann & McLachlin] (74) 1738
PANCREATIC juice, diversion of, from duodenum into stomach, effect of, on level of gastric acidity and on pancreas, [Grey] (58) 2149
  vitamin in marasmus, [Eddy & Roper] (3) 1028
PANCREATITIS, acute, [Deaver] *434
  acute, diagnosis of, [Linder] *718
  acute, treatment, report of 3 cases, [Morton] (4) 1382
PAPER as surgical dressing and bandage, [Hibbs] 400—C
  caps, sterilization of, [Manheimer] *2034
PAPILLEDEMA, effect on, of removal of cerebrospinal fluid by lumbar puncture, [Spiller & de Schweinitz] (67) 592
PAPILLOMA, malignant, of maxillary sinus, [Bilancion] (67) 2005
PARAFFIN and tar mixture for burns and frostbite, [Parasport] (61) 761
PARAFUCHSIN as stain for tuberculosis bacilli, [Lewis & Krauss] (3) 118
PARALYSIS agitans, pathogenesis of, [Manthos] (82) 763
  ascending, sarcoma inducing, [Sommerfelt] (82) 1306
  cerebral spastic, due to hemorrhage, cranial decompression for, report of 65 cases, [Sharpe & Farrell] *1056
  external popliteal *nerve, disturbance* in gait with, and device for correction, [Privat & Belot] (13) 320
  facial, [Pauchet & Labouré] (61) 1656
  facial, following Pasteur antirabic treatment, [Levy] *1873
  facial, salicylic ionic medication for, [Floriul] (55) 760
  general, and war, 1158
  general injections of salvarsan into lateral ventricle [Hammond & others] *23
  general, or dementia praecox? [Gosline] (19) 1110
  general, rapid evolution of, in men on *active service, [Mignot] (18)* 1503
  hysteric and traumatic reflex, [Ferrannini] (51) 596
  Infantile. See Poliomyelitis, Acute Anterior
  injections of salvarsan into lateral ventricle in, [Hammond & others] *23
  nerve regeneration and neurotization *of paralyzed muscles,* 824-E
  or contracture after wounds, pathogenesis of, [Salmon] (77) 2075
  progressive bulbar, and spinal atrophy consecutive to poliomyelitis, [Sommerfelt] (95) 763
  reflex contracture and, after wounds, [Molhant] (34) 2153
  transient, of arm, with pain in young children, [Conterno] (53) 1570
  traumatic brachial, with flail shoulder joint, [Thomas] (22) 1998
  traumatic reflex, disturbances in circulation with, [Heitz] (36) 155
PARASITISM, normal, and microbiosis, [Galippe] (26) 945
PARATHYROIDS and female genitalia, relation between, [Pool] 236—ab, (162) 1113
  physiologic and pathologic importance, [Voegtlin] 236—ab, (160) 1113
  thyriod and carbohydrate metabolism, 828—E
PARATYPHOID among British prisoners of war, 1371
  B bacillus and colon bacillus resistance of, in drinking water, *[Daumézon] (23) 1301*
  B of alimentary origin, [Lévy] (30) 1302
  bearing of antityphoid vaccination on diagnostic value of agglutination test in typhoid and, [Rist] (45) 1910
  carriers, convalescent, repeated autovaccination in, [Goubau] (29) 1203
  diet in typhoid and, [Vincent & Murotet] 358—ab
  vaccination against typhoid and, among soldiers during war, results of, 1722
  vaccination against typhoid and, in Macedonian campaign, [Armand-Delille & others] 1731-ME
  vaccination against typhoid and, mixed, [Widal & Salimbeni] (59) 1386
PARENTS, operating on child at request of others than, 668—Ml
PARESIS: See Paralysis, General
PARIS letter, 53, 135, 222, 302, 397, 578, 660, 747, 838, 926, 1019, 1100, 1189, 1370, 1457, 1550, 1633, 1722, 1812, 1897, 1990, 2057, 2134
PARKE, Davis and Company's Therapeutic Notes, use of Dr. Mundell's article in, [Mundell] 1818—C, [Parke, Davis & Co.] 1995—C
PARMINT, 582—P
PAROTID fistulas, resection of auriculotemporal nerve in, [Dieulafé] (101) 676
PAROTITIS aleukemic lymphadenia following, [Fischera] (69) 1835
PARTURITION: See Labor
PASTEUR antirabic treatment, facial paralysis following, [Levy] *1773
PATENT MEDICINE: See also Nostrums; Proprietary Medicines
PATENT MEDICINE, combining faith with, 1906—Ml
  in United States and Canada, 1636—P
  secrecy in, 1551—P
  threatened by fight for nation-wide prohibition, 285—E
PATENTS, foreign, to be open to American manufacturers, 1550
PATRIOTISM rampant, 570—E, [Burr] 751—C, [Robinson, Peter & Burr] 812—C, [Phillips & McDermott] 933—C
PAUL Jones Club, officers of, 1720
PAYNE'S New Discovery, 58—P
  Quick Relief misbranded, 58—P
PEAS in deficiency diseases, [Pol] (117) 2007
  poisonous, (lathyrism), [Stockman] (10, 11) 2071
PEDIATRIC expeditionary force, 737
PEDIATRIST in maternity, [Puyol] (61) 855
PELLAGRA, *alkali reserve of blood* of pellagrins, [Jobling & Maxwell] *2026
  epidemiology of, in Nashville, Tenn., [Jobling & others] (58) 591
  experimental, 1082—E, [McCoy] 1163—C
  human, pathological condition in dogs which closely resembles human pellagra, production of, [Chittenden & Underhill] (7) 789
  mortality from, in United States, [Petersen] *2096
  in Chile, [Tutle] *2105
  producing diets, biologic analysis of, [McCollum & Simmonds] (43) 1649, (85) 2000
  relation of, to location of domicile in *Spartan Mills, S. C., and adjacent district,* [Siler & others] (23) 848
  treatment of, [Herold] (108) 1381
PELVIS, contracted, with infected uterus and living fetus, management of, [Gabastou] (55) 855, (95) 2158
  foreign body in, extraction through posterior wall, [Auvray] (97) 676
  fracture, [Dudley] *38
  infections, surgical treatment, [Cullen] (105) 593
  inflammatory lesions, results of surgical measures in, [Clark & Norris] (114) 241
  projectiles in thorax and, tardy extraction of, [Charbonnel] (37) 854
  walling off, after operations, technic for, [Chaput] (20) 1301
PENNSYLVANIA medical news, 51, 131, 220, 299, 394, 481, 577, 659, 745, 837, 924, 1018, 1097, 1187, 1284, 1368, 1454, 1548, 1632, 1719, 1810, 1896, 1988, 2055, 2132
PENTOSE in urine, determination of, [Testoni] (58) 75
PEPTO-MANGAN, [Laplue] 2202—P
PEPTONE hypoglycemia, [McGuigan & Ross] (39) 149
  poisoning, liver in shock and, [Weil] (41) 1910
  shock, low blood pressures associated with experimental fat embolism and, [Simonds] *883
PERIARTERITIS nodosa, [Harbitz] (84) 1573
  nodosa, report of 2 cases [Klotz] (105) 1199
PERICARDITIS, acute rheumatic, heart block in, [Christian] (91) 2150
PERICARDIUM, mechanical effect *in, on heart,* 1613—E
  percussion and roentgen-ray findings after injection of, comparison of, [Morris & Bader] *450
PERINEUM laceration, complete, operation for, [Ill] 1294—ab
PERIODIC variations *in life processes in women,* 384—E
PERIOSTEOMA, traumatic, [Rocher] (18) 1115

PERIOSTEUM, gonococcus lesions in, [Villapadierna] (75) 949
PERISTALSIS, mild reverse, syndrome of, [Alvarez] *2018
PERITONEUM, free graft from, to close perforated stomach ulcer, [Raabe] (94) 763
  pseudomyxoma of, [Presno] (93) 414
PERITONITIS, acute diffuse, treatment of, [Gamble] 2066—ab
  septic, cecostomy in, [Nyulasy] (4) 852
  silent, and sudden death, [Minet] (48) 1476
  tuberculous, operative treatment of, [Stocker] (38) 595, [Ruffo] (50) 596
  tuberculous, radiotherapy for, [Albert-Weil] (37) 2003
PERLECHE, [Lane] *192
PERSPIRATION, insensible, and water content of food, 1701—E
PERTHES' disease, etiology of, [Roberts] *1598
PERTUSSIS: See Whooping Cough
PERUVIAN commission to United States, 1455
PETROFF'S cultural method for isolation of tubercle bacilli from sputum, application of, to examination of milk, [Stewart] (52) 2149
PETROLATUM, ichthyolized, for burns, [Suarez] (86) 1479
  liquid, in wounds, [Gray] (3) 1830
  sugared, for dressing war wounds, [d'Emidio] (68) 322
PETROLEUM poisoning, antidote for, 306
PFAUNDLER, prize for, 300
PHAGOCYTOSIS in vivo under various conditions, [Bartlett & Ozaki] (112) 1199
PHARMACISTS, disposal of drafted medical students, physicians and, 652
  medicopharmaceutical ethics, 1026—Ml
PHARMACOLOGY and therapeutics, cooperation between, [Hawlett] *1123
PHARMACOPEIA, American, first printed, [McCulloch] 530—ab
  and war, 748
PHENOL excretion of guinea pigs on exclusive oat diet, [Karr & Lewis] (14) 2147
  injection in hemorrhoids, [Escomel] (83) 247
  production, influence of bile on, [Dubin] (63) 314
PHENOLSULPHONEPHTHALEIN, absorption of, from subarachnoid space in diseases of central nervous system, [Mehrtens & West] (42) 1737
  elimination in infants and young children, [Gittings & Mitchell] (2) 1028
PHILADELPHIA regulates junk shops, 228—ab
PHILIPPINES, model house for, 27—ab
PHLEBITIS, of inferior vena cava in parturient, [Mejia] (59) 597
PHLEGMONS, gas gangrene and, [Nacciarone] (64) 1118
PHLORIZIN test, intravenous, [Krotoszyner & Stevens] *1865
PHOSPHATES, inorganic, in blood serum, micromethod for determination of, [Marriott & Haessler] (88) 2000
  toxicity of, in relation to blood calcium and tetany, [Binger] (65) 942
PHOSPHATURIA as cause of hematuria, [Perrier] (64) 1206
PHOTOTHERAPY and radiotherapy, associated [Milani & Carpelli] (77) 1387
PHTHISIS: See Tuberculosis, Pulmonary
PHYSICAL disqualification for military service in Italy, 1091
  examination, limited waiver as to, 1559—Ml
  examination of men drafted under Selective Service Act, methods and instructions to examiners, 215
  requirements for National Army, modification of, 652
  therapy, present status of, [Levy] (117) 851
  training, influence of, on morphologic development of motor nervous system, [Agduhr] (86) 1917
PHYSICIANS, absent, protecting interests of, 126—E, 128
  acting in professional capacity, 668—Ml
PHYSICIANS, adequate rank and authority for army medical officers, 284—E
  advisers to governors of states, 1807
  American, in England, 1371, 1456
  and coal card, 1370
  and selective draft, 125—E, 1790—E, 2045
  appointed life members of Austrian House of Lords, 133
  asylum for orphans of, in Spain, 133
  Austrian, decide for conscription, 1552
  Belgian and French, fund for, [Keen] 228—C, 665—C, 829—E, 1268—E, [Keen] 1290—C, 1728—C, [Jacobs] 2063—C
  British committee of inquiry, 1009—E
  casualties in Medical Corps of British Army, 45—E
  civilian, in army, 1099
  coastwise vessels not required to have, 753—Ml
  conscription of, 289—E
  consideration for promise to pay for services for another, 403—Ml
  conspicuous gallantry and devotion to duty, 572
  deaths of, abroad, 133, 483, 660, 746, 838, 1019, 1099, 1286, 1370, 1455, 1550, 1721, 1897, 1989
  degrees of American physicians sent to England, incident in House of Commons, 47
  disposal of drafted pharmacists, medical students and, 652
  draft of, based on classification, [Derby] 1023—C, [Combs & Kisecker] 1193—C
  drafting, 474—E, 653, [McBratney] 664—C, [Wilcox] 934—C, [Shaw] 1193—C
  efficiency methods and work of, [Lewis] 1461—C
  employment of, by claim agent or subordinate employee of railroad, 488—Ml
  for assistance in work of medical advisory board, call to, 1790—E
  fraternity and cooperation, [Tomlinson] 1734—ab
  full sacrifice, 1355—E, [Leavitt] 1463—C
  Georges Clemenceau a, 1976—E
  in army, "knockers" and "kickers," 126—E
  in training camps, 652
  in war, misinformation as to, 46
  injury to, answering call, 846—Ml
  may testify as to what is learned after treating patients, 1108—Ml
  meaning of terms "medicine" and 1465—Ml
  medical writers, censored, 1188
  medicopharmaceutical ethics, 1026—Ml
  mobilized, practice of civil medicine by, 1551
  need for further recruiting of, 476—E
  neither railway company nor conductor liable for services of, 1559—Ml
  no further exemption for, on ground of physical unfitness, 1551
  not bound to follow patient and be liable for care of wound, 1646-Ml
  not guardian for patient, 1028—Ml
  of foreign birth, eligibility of, for service with base hospitals, 45
  of foreign birth, serving in army, results of conflict of laws regarding, 476—E
  of Murphysboro, patriotic, 1532
  organization of Senior Military Medical Association, 1014
  power of lumber company to contract for services of, 1027—Ml
  professional secrecy imposed on, 1100
  proof required of standard of care and skill, 2142—Ml
  recommended for commission in Medical Reserve Corps, 477, 1437
  registered in Arkansas in 1916; 141
  rendering services to minor at father's request, 1558—Ml
  roll of honor, 476—E, [Roberts, Schmitz & Starr] 582—C, [von Adelung] 843—C, [Silliman] 1024—C
  scarcity of, in Canada, 1720
  shortage of, in Great Britain, 55, 1550
  tribute to the doctor, 46
  victims of their devotion, 926, 1370
  women and war, [Mitchell 1023—C
  wounded in action, 2121
PICA, 486
PICQUÉ, Lucien, death of, 222
PIEDRA, [Moses] (102) 498
PIERCE'S Anuric Tablets, 915—E, 930—P
PILOCARPIN, antagonists of, [Ransom] (81) 1297
PILONS, temporary, [Bizarro] (25) 410
PINEAL GLAND, influence of, on growth and differentiation with reference to prenatal development [McCord] 235—ab, (161) 1113
PIPETS, safety cap for graduated, [Gates] *467
V. PIRQUET test as controlled by necropsy findings, value of, [Knox] 311—ab, (5) 311
PITUITARY and female genitalia, relation between, [Goetsch] 235—ab, (159) 1113
  body, possible derivation of active principle of posterior lobe of, from tethelin produced by anterior lobe, [Schmidt & May] (68) 315
  deficiency with adenoids, [Citelli & Caliceti] ((66) 246
  disease, study of 100 cases, [Abrahamson & Climenko] *281
  extract, active principle of pituitary body, 1431—E
  extract, effect of, on blood pressure of febrile patients, [Schmidt] (66) 69
  extract in abnormal intestinal functioning, [Pimentel] (69) 1305
  extract in diabetes insipidus, [Norgaard] (121) 2008, [Barker & Mosenthal] (31) 2070
  extract in incontinence of urine, [Mikhailoff] (104) 2077
  extract in obstetrics, [Jiminez] (60) 597
  functions of, 1697—E
  solution, thermal decomposition of oxytocic principle of, [Adams] (46) 149
  tumor, retropharyngeal, [Leegaard] (96) 763
PLACENTA as gland of internal secretion, [Frank] 237—ab, (170) 1113
  praevia, celiohysterectomy for puerperal eclampsia and, [Taulbee] 2144—ab
  praevia, cesarean section in, [Boyd] (3) 237
  praevia, dangers and treatment of, [Labhart] (59) 1916
  premature detachment of, with delivery of live baby by cesarean section, [Hillis] *1969
  premature separation of, accidental hemorrhage from, [Harrar] (45) 1197
PLAGUE, bubonic, history of, [del Pont] (92) 158, (99) 1744
  bubonic, in port of London, 1099
  transmission of, by bedbugs, [Cornwall & Menon] (19) 2072
PLANTAR tibialis anticus reflex, [Obarrio] (91) 2006
PLANTS, wild, substitutes for domestic, 955—ab
PLASTER, supination by, method of, [Verrall] (21) 853
PLAS-TR-PAD case, liability of corporation undertaking to cure hernia. 846—Ml
PLATTSBURG training camp for Reserve officers, methods and results of examinations by cardiovascular and tuberculosis commission at second camp, [Francine & others] *2110
PLAUT-VINCENT'S Angina: See Vincent's Angina
PLETHORA, 571—ab
  experimental, effects on blood production, [Robertson] (53) 590
PLEURA, and lungs in acute articular rheumatism, [Mollard & Favre] (37) 73
  effusion, cholesterol in [Arnell] (81) 1573
  effusion in tuberculous, differential cell count of, experimental research on, [Golay] (67) 1478
  effusion, new physical sign in pneumothorax and, [Williamson] (48) 494
  effusions, remote sequels of, [Péhu & Daguet] (39) 2073
  endothelioma of, primary, [Keilty] (12) 67
  reaction to inoculation with tubercle bacilli in vaccinated and normal guinea pigs, [Paterson] (11) 939
  suppuration in, treatment of, [Tuffier] (72) 675
  war surgery of lungs and, [Moynihan] 1541—ab
PLEURISY, beneficent secondary, with pulmonary tuberculosis, [Murard & Marotte] (46) 854
PLEURISY, hemorrhagic, and sarcoma of mediastinum, [Comby] (36) 1204
  purulent, and abscess in liver, differential diagnosis of, [Moreau] (49) 156
  purulent, continuous aspiration in, [Dauriac] (17) 1115
  purulent, cured without fistula by filiform drainage, [Chaput & others] (29) 1653
  purulent, prolonged aspiration in, 926
PLURIGLANDULAR insufficiency in young woman, [Fog] (88) 950
PNEUMOCOCCI and meningococci in meningitic fluid, [Netter & Salanier] (31) 1302
  elaboration of specific soluble substances by pneumococcus during growth, [Dochez & Avery] (39) 1379
  infections, biologic classifications in, [Hartman & Lacy] *2165
  isolated from acute lobar pneumonia and other infections, incidence of types of, [Clough] (19) 1648
  mixed infection with, in epidemic meningitis, [Mathers] *1778
  studies on streptococci and, [Aschner] (52) 1380
  types of, methods for determining, [Blake] (61) 239
PNEUMONIA, [Bastian] 1733—ab
  acidosis and acid excretion in, [Palmer] (40) 1379
  acute lobar, effect of serum therapy in, [Bloomfield] (18) 1648
  acute lobar, incidence of types of pneumococci isolated from, [Clough] (19) 1648
  acute lobar, report of studies concerning, [Cole] *505
  atypical forms of, in young children, [Garrahan] (93) 2158
  cyanosis and hyperpnea in cardiac decomposition and, explanation for, [Pearce] (73) 1472
  in children, [Myers] (146) 409
  in children, mortality and treatment with reference to use of alcohol, [Koplik] *1661
  in prison camp, [Mallié] (48) 2074
  indications for evacuation of uterus in, [Colistro & Carlevaro] (73) 2156
  lobar, bacteremia in, [Sutton & Sevier] (21) 1648
  lobar, epidemiology of, [Stillman] (41) 1379
  lobar, organization in, experimental study of, [Kline] (54) 590
  pulmonary edema in, treatment of, [Bastedo] *800
  septic, in puerperium, [Sheill] (33) 154
  suffocation in, from falling back of root of tongue, [Jorgensen] (88) 1574
  unresolved, what becomes of them? [Hess] (10) 1562
PNEUMOTHORAX, artificial, in pulmonary tuberculosis in pregnant, [Van Voornveld] (58) 245
  artificial, in pulmonary tuberculosis, deductions from 4½ years use of, [Minor] (27) 2147
  artificial, in pulmonary tuberculosis, present status of, [Beggs] (26) 2147
  in 12 year old boy, [Abt] 235—ab
  new physical sign in pleural effusion and, [Williamson] (48) 494
POISON OAK, field experiment on prevention, [von Adelung] 1023-C
  suicides from, [Spinner] (106) 676
POLAND WINE BITTERS, 139—P
POLICE Gazette and venereal advertisements, 1022—P
POLIOMYELITIS, 1099
  acute, [Alfaro] (86) 1388
  acute, age and seasonal incidence and communicability of, as shown in New York epidemic, [Herrman] *163
  acute, cerebrospinal fluid in, [Kolmer & others] (9) 2068
  acute, complement fixation with specific antigen in, [Neustaedter & Banzhaf] (34) 1828
  acute, immune reactions in rabbits injected with micrococci from, [Mathers & Howell] (34) 1030
  acute, mosquitoes and flies in relation to epidemiology of, [Noguchi & Kudo] (59) 359
  carriage of virus of, with subsequent development of infection, [Taylor & Amoss] (40) 1909
  cerebrospinal fluid in, report of 108 cases, [Overholser] (38) 1471
  deformities of spine caused by, treatment of, [Hibbs] *737

POLIOMYELITIS, early diagnosis of, [Ayer] (118) 851
  epidemic, immune horse serum in, [Rosenow] *1074
  epidemic in New York State, results of, [Shaw] *167
  epidemic, so-called specific horse serum in, 1350—E
  epidemic, specific serum therapy of, report of 159 cases treated with antipoliomyelitic horse serum, [Nuzum & Willy] *1247
  fatigue and exercise in, study of 1,836 cases, [Lovett] *168
  neutralization of virus of, by nasal washings, [Amoss & Taylor] (174) 1113
  orthopedic problem in after-treatment of, [Lovett] (23) 1471
  orthopedic treatment of acute and convalescent, [Ebright] *694
  production of antipoliomyelitis serum in horses by inoculations of pleomorphic streptococcus from, [Rosenow] *261
  progressive bulbar paralysis and spinal atrophy consecutive to, [Sommerfelt] (95) 763
  reflexes in, condition of, [Regan] (1) 1825
  report of 110 cases, from acute onset to present time, [Ogilvy] *691
  this summer, 288—E
  treatment at Fordham hospital, [Boorstein] *696
  treatment, comparison of methods, [Ulrich] (31) 407
  winter, 2120—E
POLLEN, antigen, stable, [Clock] (49) 1380
POLYCYTHEMIA, roentgenotherapy of, [Nordentoft] (108) 1122
  vera, nervous symptoms of, [Christian] (9) 1469
POLYMYOSITIS, chronic primary war, with atrophy, [Graziadei] (69) 75
POLYNEURITIS, alcoholic, [Odriozola] (77) 1119
  diabetic, [Pitres & Marchand] (50) 1834
  epidural injections in, [Mejia] (110) 499
  following electric shock from live wire, [Tornaghi] (79) 323
POLYSEROSITIS with sarcoma in abdomen of young woman, [Kramer] (130) 499
PORTO RICO April examination, 307
  Medical Society, annual meeting of, 1455
POSTMORTEM: See Necrópsy
POSTURE in abdominal drainage cases, [Hill] (25) 1736
  influence of, on physical development of school children, [Resmark] (87) 1917
POTASSIUM, effect of varying calcium and potassium content of perfusion fluids on vague inhibition, [Brine] (8) 1294
POTATOES in relation to bread production, 1189
  nitrogenous components of, physiologic value of, 200—E
PRACTICE Contract in Netherlands, 1129—ab
  of civil medicine by mobilized profession, 1551
PRAYERS for profit and Christian Science, [Coonley] 2139—C
PRECIPITIN production in allergic rabbits, [Hektoen] (32) 1030
PREGNANCY and tabes dorsalis, coincident, [Allen] *979
  care of expectant mothers, 464—ab
  cholera in, essential factors in treatment of, [Lowell] (75) 1912
  chronic valvular heart disease in labor and, [Kellogg] (35) 1296
  diagnosis of, [Kaarsberg] (95) 1390
  diseases of ovaries or tubes complicating, [Brindeau] (31) 243
  extrauterine, advanced, sign of, [Lascano] (57) 855
  extrauterine, diagnosis and treatment, [Ladinski] *633
  extrauterine, early diagnosis and treatment of, [Vance] 2144—ab
  extrauterine, full term, retained 18 years, operation and recovery, [Peterson] (80) 1112
  extrauterine, tetanus following laparotomy for, subarachnoid injections of magnesium sulphate and antitetanic serum in, [Casler] 2143—ab
  fat and lipoid content of serum in, [Ecalle] (32, 33) 758
  hygiene, nurses for instruction in, 1793—ab
PREGNANCY in double uterus, [Moreno] (87) 247
  influence on development, progress and recurrence of cancer, [Bainbridge] 1466—ab
  interruption of, should uterus be removed when pregnancy must be interrupted, [Marvel] 1467—ab
  mechanical obstruction to, methods for overcoming, [Morris] 1467-ab
  modifications in antitryptic power of blood serum in, [Ecalle] (31) 758
  pulmonary tuberculosis in, therapeutic induced pneumothorax in, [Van Voornveld] (58) 245
  pyelonephritis of, [Molina] (69) 2077
  status epilepticus in, [Albeck] (94) 1040
  toxemia of, cesarean operation in, [McKinnie] 1561—ab
  toxemia, preeclamptic, indications for interference in, [Dice] 1467—ab
  vomiting of, blood transfusion in, [Garnett] (12) 669
  vomiting of, cause and treatment, [Hannah] (108) 943
PRESCRIBING intoxicating liquors, construction of statute with reference to, 1027—Ml
  intoxicating liquors, illegal, 1292-Ml
  simplification of, [Cornet] (38) 318
PRESSURE, intravisceral and intra-abdominal, [Coffey] *683
PRIMIPARAE, elderly, [Kouwer] (27) 1832
PRIMROSE dermatitis and anaphylaxis, [Simpson] *95
PRISONERS, exchange of, 300
  in Germany, Netherlands physicians inspectors of camps, 389
  of war in Germany, diet of, [Taylor] *1575, 1613—E
  of war, Italian medical, impressions of, 739
  of war suffering with symptoms similar to traumatic neurosis, [Julliard] (57) 1304
PRIZE, Alvaranga, 1369
  Beretta, for Milan physicians, 1720
  Nobel, Red Cross gets, 2121
PROBE with resonator attachment, [Stefani] (78) 675
PROCTOLOGY and Gastro-Enterology, Section on, retrospect and prospect, [Murray] *1481
PROFESSION, Medical: See Medicine; Physician
PROFLAVINE, antiseptic properties of acriflavine, brilliant green and, [Browning & others] (20) 673
  in recently inflicted war wounds, [Colledge & others] (15) 2003
PROHIBITION, morbidity under, [Schou] (119) 416
  patent medicines threatened by fight for nation-wide, 305—E
PROMISE to pay for services for another, consideration for, 403—Ml
PRONE position, 751
PROPRIETARY medicine, impossibility of judging merit of, by number of years on market, 204—E
PROPRIETORSHIP in medicine, handicap of, [Mundell] 1818—C, [Parke, Davis & Co.] 1995—C
PROSTATE, cancer of, [Floderus] (82) 858
  cancer of bladder and, radium in, [Barringer] (18) 1378
  cancer of, improved technic for radical excision with preservation of urinary control, [Young] *1591
  hypertrophy of, [Wishard & Hamer] 1560—ab
  hypertrophy of, roentgenotherapy of, [Nordentoft] (108) 1122
  hypertrophy of, surgery in, [Grant] 2144—ab
  infections in, [Judd] (36) 1110
  median bars found at necropsy, [Randall] (64) 1111
PROSTATECTOMY, suprapubic, results of, [Suter] (54) 1834
  suprapubic, tube for bladder drainage in first stage of, [Ballenger & Elder] *2104
PROSTATITIS, classification of, regardless of how caused, 402—Ml
  primary, [Porcelli] (68) 1835
PROSTHESES among the ancients, [Branchu] (86) 675
PROSTITUTION and the army, [Exner] 16—ab
  during wars, historical sketch of, [Fonss] (94) 1918
PROTEINS, artificial iodization of, in attempt to produce substance with thyroid-like activity, [Rogoff & Marine] (26) 2069
PROTEINS, effect of diets containing various forms and quantities of, on human milk production, [Hoobler] (4) 588
  foreign, accidents in, administration, [Kerley] 310—ab
  foreign and arthritis, [Thomas] *770
  foreign, fate of, in acute anaphylactic reaction, [Manwaring & others] (78) 1297
  foreign, intravenous in psoriasis, [Scully] *1681
  foreign, proteolytic ferments for, [Albanese] (99) 198
  foreign, reaction after intravenous injection of, [Scully] *20
  human milk production and diets containing various forms and quantities of, [Hoobler] 311—ab
  intake, influence on creatin excretion in children, [Denis & Kramer] (41) 119
  intoxication, chronic, vascular lesions in, [Boughton] (77) 1297
  intoxication, studies in, [Shattuck] (20) 848
  quality grades of, 1351—E
  quotient in blood serum, nondependence of, on rapidity of metabolism with reference to noneffect of antipyretics, sodium cacodylate and thyroid extract, [Hanson & McQuarrie] (75) 1738
  specific and nonspecific, antibodies in gonococcal arthritis after injection of, [Culver] (46) 1910
PROTEINURIA, Bence-Jones, 824-E
PROTOZOA, intestinal, occurrence of, in non-dysenteric cases, [Macilo and others] (5) 1299
  stain for blood corpuscles and, [Watabiki] (139) 679
PRURITUS, tabetic, [Vignolo-Lutati] (89) 497
PSEUDOLEUKEMIA: See Hodgkin's Disease
PSEUDOMYXOMA of peritoneum, [Presno] (93) 414
PSORIASIS as excuse for exemption, 916—E
  intravenous foreign protein in, [Scully] *1684
PSYCHIATRISTS and neurologists instructed on examination of troops, 478
PSYCHIATRY, diagnostic values of spinal fluid and Wasserman tests in, [Fell] (4) 753
  new field in neurology and, [Salmon] (50) 1031
  problems in, [Rosanoff] 666—ME
  special service for neurology and, 389
  teaching of, [Myer] *861
  traumatism in, [Rossi] (71) 2156
PSYCHOLOGY, relation of, to military activities, [Yerkes] (79) 1650
PSYCHONEUROSES, emotional, in soldiers at front, [Pighini] (94) 497
  how shall we look at them today, [Diller] *956
PSYCHOSES: See also Insanity; Neurasthenia; Neuroses
PSYCHOSES and syphilis of nervous system, analysis of cases showing divergence between clinical and serologic picture, [Lowrey] (3) 753
  cystoscopic examination of bladder in, [Barnes & Caulk] (76) 942
  other than paretic dementia in syphilitics, [Gordon] *1403
  war, [Binswanger] (76) 2075
PUBLIC HEALTH SERVICE experts to protect training camps, 207
  new divisions in, 389
  Reserve Corps, 1088
PUERPERAL infection, serums and vaccines in, [Beruti & Costa] (43) 855
PUERPERIUM, septic pneumonia in [Sheill] (33) 154
PULMONARY Tuberculosis: See Tuberculosis, Pulmonary
PULSE, alternating, heart disease with, effect of digitalis in, [Windle] (37) 1384
  flow in brachial artery, [Hewlett] (10) 406
  pressure, blood pressure, hemoglobin in postoperative shock, postoperative hemorrhage and postoperative cardiac dilatation, study of, [Polak] 237—ab
  pressure test in preoperative, estimation of reserve strength of cardiovascular system, [Cashman] (2) 1469
  rate, rapidity of rise in, [Yanovsky] (108) 415
PULSE, subnormal arterial pressure with abdominal wounds, [Chiaserini] (65) 1916
  suspension of respiration and, at onset of epileptic seizures in man and with complete heart block, [Kouwenaar] (96) 1208
PUPIL reaction in colored light, [Cutting] (30) 1828
  reactions, [Tournay] (38) 244
  reactions after shell shock, disturbances in, 1371, [Guillain & Barre] (41) 1381
PURGED intestine, changes in rhythmicity, irritability and tone in, [Alvarez & Taylor] (29) 2069
PURPURA affecting bladder, [Perrier] (41) 1117
  forms of epidemic meningitis with, [Netter] (54) 2001
  hemorrhagica, chronic, pathogenesis of, [Schupfer] (68) 1119
  infectious, epidemic among troops, [Vannutelli] (110) 677
  rheumatic, with features suggesting scurvy, [Gabbi] (85) 1657
PYELITIS, acute, in children, [de Rezende] (90) 1658
  colon bacillus, with reference to boy subjects, [Graves] (8) 2068
  experimental, in rabbits, [Helmholz & Beeler] *898
PYELOCYSTITIS patients, focal lesions produced in rabbit by colon bacilli isolated from, [Helmholz & Beeler] 147—ab
PYELONEPHRITIS in pregnancy, [Molina] (97) 2077
PYELOTOMY, [Surraco] (72) 2156
PYLOROSPASM and mucous gastritis in infants, [Chevrel] (41) 947
PYLORUS, exclusion of, technic for, [Franchini] (63) 2004
  palpitation of pyloric region, [Mathieu] (38) 155
  stenosis, hyperplastic, [Palmer] (28) 1736
  stenosis hypertrophic in adult, [Urrutia] (21) 2211
  stenosis, hypertrophic, in infancy, [Haggard] 2066—ab
PYOTHORAX, treatment of, [Morelli] (84) 1744
PYRIFORM sinus, frothy secretion in, sign of diverticulum in esophagus, [Oppikofer] (68) 1387

Q

QUAKER Herb Extract misbranded, 58—P
  Oil of Balm misbranded, 58—P
QUARTZ lamp, mercury vapor, experiences with, [Sokolow] (57) 245
DE QUERVAIN, F., succeeds Kocher at University of Berne, 1720
QUININ, anaphylaxis to, [Heran & Saint-Girons] (37) 1204
  and galyl in subtertian cerebral malaria, [Falconer & Anderson] (21) 1567
  and urea in hemorrhoids, [Terrell] *1509
  bihydrochlorid, intramuscular injection of, in tertian malaria, [Stephens & others] (8) 672
  elimination by urine, [Jeanselme & Dalimier] (41) 1204
  incompatibility of, with aspirin, 1375
  suitability of more soluble salts of cinchonin and, for intravenous injection, [Rogers] (9) 1473
QUININIZED serum in malaria, [Hayem] (42) 156

R

RABBIT-FOOT therapy, 1986—E
RABIES: See Hydrophobia
RACHICENTESIS, effect of, on papilledema, [Spiller & de Schweinitz] (67) 592
  for essential headache, [Mingazzini] (65) 761
  in wounds of skull, [Lerda] (41) 596
RACHITIS and premature infants, [Huenekens] 1825—ab
  and thymus, 1700—E
  prophylactic therapy of, in negro community, [Hess & Unger] *1583
  recurring, [Radice] (63) 245
  skull decompression as symptom of, [Quant] (101) 1480
RADIOACTIVE substances in malignant disease, Duane] (6) 2209
  therapy in malignant growths, truth about, [Holding & Long] 982
RADIOGRAPHY: See Roentgenography
RADIOLOGY and radioscopy, [Barret & Aubourg] (47) 1035

RADIUM in bladder and prostatic carcinoma, [Barringer] (18) 1378
  in gynecology, [Castano & others] (54) 855
  in malignant disease of throat and sinuses, [Pancoast] *980
  in myelocytic leukemia, [Giffin] (13) 2066
  in new growths of mediastinum, [Burnam] *989
  in nonmalignant uterine hemorrhage, [Miller & King] 2066—ab
  in uterine cancer, [Bailey] 145—ab
  in uterine hemorrhage and fibroid tumors, [Miller] 144—ab
  in uterine hemorrhage due to other cause than malignancy, [Kelly] 144—ab
  in uterine hermorrhage of benign origin, [Clark] 145—ab
  institute, in Argentina, organization of, 926
  treatment, results of, at Collis P. Huntington Memorial Hospital, [Duane & Greenough] (40) 1197
RAILWAYS, casualties on steam, 1463—ab
  company nor conductor liable for services of physician, 1559—Ml
RANCH accommodations for nervous girl, 1375
RANEY'S Blood Remedy misbranded, 1192—P
RAT as carrier of spirochaeta icterohemorrhagiae, [Ido & others] (53) 1110, [Jobling & Eggstein] *1787, 2208—ab
  campaign against, [Calmette] (55) 1476
  destruction of, on ships, 1177—ab
RAT BITE DISEASE, etiologic agent of, [Kitagawa & Mukoyama] (28) 1196
  experimental, 125—E
RATION of Italian army, [Baglioni] (48) 1569
  of navy, [Belli] (49) 1569
  reform in army, [Rho] (47) 1569
RATTLESNAKE Oil Liniment misbranded, 1192—P
REACTION, luetin, and Wassermann reactions in tuberculosis, [Corper & others] (29) 2147
  Wassermann: See Wassermann Reaction
RECKLINGHAUSEN tumor of Wolffian body, [Forssner] (83) 858
RECRUITS, examination of lungs of, [Lopez] (66) 598
  for National Army, early medical care of, 736
  medical examination of, 301
  medical examination of, transferred to civilian authority, 580
  warning to examiners of, [Osler] 290
RECTUM, adenomyoma of rectovaginal septum, [Cullen] (46) 1999
  cancer of, palliative operation for, [Federoff] (111) 1660
  cancer of pelvic colon and, [Lynch] *1775
  constipation, habitual, [Thaysen] (89) 1836
  crises of nontabetic origin, [MacLennan] (16) 1474
  ether-oil general anesthesia by way of, [Protopopoff & others] (75) 857
  fistula of anus and, [Pennington] *1501
  fistula of urethra and, operative treatment, [Young & Stone] (57) 491
  idiopathic dilatation of, [Bard] (28) 1568
  injection of ether by, [Montoya] (111) 499
  polyadenomatosis, familial, [Oidtmann] 1291—ab
  roentgenologically considered, [Case] (1) 847
  rupture of, spontaneous, [Henningsen] (95) 1040
RECURRENT FEVER: See Relapsing Fever
RED CROSS activities in Italy, 1977
  ambulance companies in France, 736
  American, 302
  American and French, 578
  American, canteens for soldiers, 1370
  American, donations to Paris, 1633
  American, in Belgium, 1100
  American, in France, 2045
  American, medical advisory committee for, 46
  American, mission to Russia, work of, [Billings] *1687
  American, rôle of, 1458
  base hospitals, [De Lee] 665—C
  Commission to Italy, 477
  Commission to Roumania for relief work, 294
  Commission to Roumania goes to Jassy, 1090
  Commission to Russia returns, 1090
  Commission to Serbia, 736
  director general, new, 1437
  first aid trip, 1455
  gets Nobel prize, 2121
  issues manuals for making surgical dressings, 1014
  mission in Italy, 1370
  new medical service bureau for, 1271
  to erect houses for convalescent soldiers, 206
  workers, army rank for, 571
REDINTOL, 306
REFLEXES, graphic record of, [Strohl] (69) 674
  plantar, [Rimbaud] (46) 1833
  plantar tibialis anticus, [Obarrio] (91) 2006
  therapy, [Mejia] (122) 678
  vascular, with various tensions of ether vapor, [Mann] 405—ab
  vasomotor, of skin, testing and recording, [Tracy] (9) 2209
RELAPSING FEVER contracted in Macedonia, characteristics of, [Delille & others] (27) 1302
  treatment of, [de Ruddere] (40) 1475
REPRODUCTIVE tissues, effect of alcohol on, [Arlitt & Wells] (54) 2149
RESEARCH, funds for, 545
  medical, effects of war on, 1793—E
  medical, gift for, 920
RESPIRATION, carbon dioxid and regulation of, 735—E
  clinical studides on, [Peabody & others] (34-36) 1196
  minute volume of, and basal metabolism of patients with cardiac disease, [Peabody & others] (36) 1196
  physiology of, [Pearce & Hoover] (9, 10) 1735
  suspension of pulse and, at onset of epileptic seizures in man with complete heart block, [Kouwenaar] (96) 1298
RESPIRATORY apparatus, diseases of, in infants brought to welfare station, [la Ferla] (76) 1038
  apparatus, graduated spiroscopic exercises in training, [Pescher] (47) 1915
  infections, acute, rôle of streptococcus in recent epidemic of, [Cummings] (57) 755
  tract, tuberculosis of, and war, [Morichau-Beauchant] (50) 760
RETINA of Mexican axolotl, [Ochoterena] (78) 2157
RETINOCHOROIDITIS, juxtapapillary, [Puiggari] (70) 762
RETROPHARYNX, pituitary tumor of, [Leegaard] (96) 763
RHABDOMYOSARCOMA, traumatic, following successive fractures of femur, [Muller] (60) 941
RHEUMATISM, acute articular, symptoms from pleura, lungs and pericardium in, [Mollard & Favre] (37) 73
  acute articular, wound diphtheria complicated by, [Bicak] *38
  aortic valvular disease and myocarditis due to, [Kouwenaar] (128) 499
  articular, syphilitic, [Barlaro] (85) 1388
  chronic, intravenous injections of foreign proteins in, [Thomas] *770
  from modern view point, [Meyers] (119) 71
  heart block in acute rheumatic pericarditis, [Christian] (91) 2150
  trench, colloidal, sulphur in, [Comrie] (33) 410
RHINITIS: See Colds
RHINOLOGY, otology and laryngology, relation to general medicine, [Emerson] *859
RHODE ISLAND medical news, 51, 1988
RHUBARB leaves, poisoning from, [Maillart] (68) 1478
RICKETS: See Rachitis
RIFORMA MEDICA, change in staff of, 395
RIGGS' DISEASE: See Pyorrhea Alveolaris
ROCKEFELLER Foundation budget, 2133
  Foundation, report of, 1731—ME
  Foundation, work of, in China, 1327—ab
ROCKY MOUNTAIN spotted fever in California, [Cumming] (33) 1828
ROENTGEN RAY burn, barring of action for, 1108—Ml
ROENTGEN RAY, dangers of operating, 229
  Diagnosis: See Roentgenography
  effect of, on diseases of bacterial origin, [Kempster] (21) 1383
  examination after war wounds, utility of, [Masserini] (59) 75
  examination, against compulsory, 66—Ml
  martyrs to, 1370
  plate illuminator, giving perspective view, [Singer] *1520
  plates, convenient method for recording data on, [Blachly] *999
ROENTGENOGRAMS and privileged knowledge, right to select physician, 2065—Ml
  diagosis of age of fetus by, [Hess] (1) 2208
  showing what seem to be calculi but are not, [Voorhoeve] (112) 415
ROENTGENOGRAPHY in diagnosis of cancer of large intestine, [Bensaude & Guenaux] (39) 155
  in diagnosis of pulmonary tuberculosis, [Manges] (164) 492
  legislation for, 745
ROENTGENOLOGY, military, class organizes, 2121
  military, schools of instruction in, 477
ROENTGENOTHERAPY and phototherapy, associated, [Milani & Cappelli] (77) 1387
  deep, results in 258 cases of malignant tumors, [Holding] (9) 311
  in brain tumors, [Nordentoft] (114) 160
  in cancer, [Nordentoft] (98) 1208
  in dysthyroidism, [Palmer] (123) 1381
  in enlargement of thymus, [Friedländer] 234—ab, (4) 311
  in gynecology, [Kouwer] (119) 2007
  in malignant disease of throat and sinuses, [Pancoast] *980
  in malignant disease, possibilities and limitations in, [Pfahler] *985
  in lymphosarcoma, [Holding] (70) 70
  in malaria, [Pais] (57) 2156
  in sarcomas, [Nordentoft] (107) 1122
  in status lymphaticus in epileptics, [Symmers] 2204—C
  in surgical tuberculosis, [van Ree] (81) 1917
  in syringomyelia, acromegaly, polycythemia, hypertrophy of prostate and retroperitoneal tuberculous glands, [Nordentoft] (108) 1122
  in war wounds, [Réchou] (45) 1035
  in war wounds involving nerves, [Brodier & Gérard] (47) 1204
  of tuberculous lymph nodes, [Ratera & Ratera] (67) 856
  of tuberculous processes in bones, [Albert-Weil] (35) 318
  thyroidism after, [Verning] (92) 1390
  true and supposed dangers from, [Béclère] (33) 318
  truth about radioactive therapy in malignant growths, [Holding & Long] *982
ROLL OF HONOR, 476—E, [Roberts & others] 582—C, [von Adelung] 843—C
ROOT Juice Compound, 139—P
ROSADALIS misbranded, 1192—P
ROSER-Nélaton line, [Motoshima] (82) 1835
ROTUNDA Hospital, pathologic report of, [Rowlette] (6) 2210
ROUMANIA, Red Cross commission to, 294, 1090
  medical missions for, 1881
RUBBER goods, preserving, [Young] 62—C
RUFFER wards of Greek hospitals, 482
RUMINATION in first year of life, [Grulee] (5) 1028
RUSSELL Emulsion and Russell Prepared Green Bone, [Standard Emulsion Co.] 751—C
RUSSIA, Dr. Billings in, 918
  French medical units in, 222
  medical supplies for, 737
  work of American Red Cross commission to, [Billings] *1687

S

S. S. S. Swift's Sure Specific, 663—P
SACRO-ILIAC joints in obstetrics and gynecology, [Litzenberg] *1759
SAILORS' and soldiers' insurance law, 650—E, 652, 1697—E, 1820
ST. LOUIS contribution to Medical Reserve Corps, 1014
SALICYL edema, [Hanzlik & others] (29) 1196
SALICYLATES, [Hanzlik & others] (29) 1196
  renal functional and morphologic changes in animals following administration of, [Hanzlik & Karsner] (63) 69
SALICYLIC ionic medication for facial paralysis, [Fiorini] (55) 760
SALIVARY fistulas, [Jorge] (91) 158
SALKOWSKI-KOJO test for colloidal nitrogen in urine, 1291
SALVARSAN, 1819, 2115
  administration, technic of, 909
  and Japanese substitutes, comparison of, 1768—ab
  end monopoly on, 205—E, [Politzer] 305-C, [Katsainos] 843-C
  erythema after, and its substitutes, [Milian] (26) 1116
  injections into lateral ventricle in paresis, [Hammond & others] *23
  myelitis due to, fatal case, [McCaskey] *1960
  patent, trade commission acts on, 1989
SALVE, protecting, for surgeon's hands, [Varsi] (92) 414
SANATORIUM, duty and liability of owner or operator of, 1822—Ml
  food monotony, [Wolman] 2102-ab
  management, luxury in, [Palmer] 1614—ab
SANITARY condition of American troops in France, 926
  Corps, orders to officers of, 656, 740, 833, 920, 1014
  orders, field, [McCulloch] *1345
  units, appropriations for, 1090
SANITATION and sepsis, 1538—ab
  around new cantonments, 478
  in Dutch West Indies, 475—ab
  in trenches, [McCulloch] *81, *183, [Baruch] *1694
  military, duties of technical adjunct, [Louste] (29) 2152
SANTOS FERNANDEZ, seventieth birthday of, 660
SARCOMA and hemorrhagic pleurisy of mediastinum, [Comby] (36) 1204
  complicating Paget's disease of bone, [Heazlit] (146) 316
  hen, [Ogata & Ishibashi] (106) 2006
  in abdomen in young woman, polyserositis with, [Kramer] (130) 499
  inducing ascending paralysis, [Sommerfelt] (82) 1306
  loss of power to produce sarcomatous transformation in stroma, [Woglom] (21) 1827
  melanotic, of small intestine, report of case, [Vander Veer & Kellert] (147) 316
  of brain simulating hydrocephalus, [Holt] 311—ab
  of fallopean tube, [Bello & Castaneda] (82) 247
  of skin, primary nonpigmented, [Zeisler & Zeisler] *111
  primary, of stomach, [Medina & Egaña] (93) 158
  rat, experiences with, [Serafini] (77) 2005
  roentgenotherapy of, [Nordentoft] (107) 1122
SCABIES, chlorin gas in, [Clark & Raper] (6) 757
SCALP, avulsion of, complete, [Flaherty] (121) 851
  epidermophyton infection of, case of, [Weise] *1059
SCAR: See Cicatrix
SCARLET FEVER, cause of, new conception of, [Bristol] 2139—C
  eye complications in, [di Giuseppi] (47) 1038
  and milk, [Djørup] (118) 2078
SCHICK TEST: See Diphtheria
SCHISTOSOMUM mansoni, early symptoms following infections by, [Lawton] (13) 1653
SCHNEYER method for determination of lactic acid in urine, [Maver] (45) 1649
SCHOOL: See also Education, Medical; University
SCHOOL anemia, [Bracci] (58) 1571
  Children: See also Children
  children, health of, 1552
  children, vaccination of, compulsory, construction of statute with reference to, 230—Ml

SCHOOL, humidity of, 825—E
  medical inspection of, in Toronto, 1720
  medical supervision of, for Delaware, [Beebe] 1733—ab
  medical, whose students will be recognized for exemption, 1178
  of plastic surgery opened, 1615
  outdoor, fresh-air and open-window, for physically handicapped children, [Smith & others] *2093
SCHWEIZER Archiv für Neurologie und Psychiatrie founded, 452
SCIATICA and brachial neuritis, [Patrick] *2176
  exercises that stretch sciatic nerve, [Roussy & others] (61) 1477
  gluteus reflex as sign of, [Rose] (59) 412
  minor electric signs of, [Neri] (70) 246, (42) 1303
  sensory Achilles tendon sign with, [d'Allonnes] (81) 496
  treatment of, [Strauss] *2032
SCLEROSIS, multiple, early recognition of, [Crafts] *1130, [Snydacker] 1462—C
SCLEROTICS, blue, in connection with other anomalies, [Voorhoeve] (89) 763
SCOLIOSIS, remote results of treatment for, [Serra & Valtancoli] (73) 1565
  treatment of, [Peckham] *1233
SCORBUTUS: See Scurvy
SCURVY and war dietary, 1268—ab
  epidemic of, [Harvier] (33) 2211
  etiology of, 728—E, [Hopkins] 1641—C
  experimental, historical note, 2045—E
  experimental, of monkey, mineral metabolism of, [Howard & Ingvaldsen] (45) 314
  infantile, pathogenesis of, [Hess] (2) 1825
  infantile, 12 new cases, [Comby] (10) 1115
  prophylaxis of, [Shibkoff] (105) 415
SEABORD Medical Association of Virginia, meeting of, 2133
SEAMAN, injured, taking, to other than marine surgeon, 231—Ml
SEAWRIGHT Magnesian Lithia Water misbranded, 1901—P
SECRETARY of corporation contracting for treatment of injured employee, 309—Ml
SECRETION, internal, and eye, [Zentmayer] *1
  internal, and nervous system in primary myopathies, [Navarro & Correas] (68) 949
  internal, insufficient, low sugar content a sign of, 828—E
  internal, placenta as gland of, [Frank] 237—ab, (170) 1113
  internal, relation of glands, to glynecology and obstetrics, [Frank] (158) 1113
SECTIONS, necropsy, method for filing, [Robinson] *2037
SEMINAL vasiculotomy and external urethrotomy, [Fuller] *276
SENNA, imports of, [Southard] 791—ab
SENSORY metameres in cat hind leg, [de Boer] (100) 1480
SEPSIS and sanitation, 1538—ab
SEPTICEMIA, intravenous injections of isotonic sugar solution in, [Audain & Masmontell] (51) 2154
  Puerperal: See Puerperal Infection
  skin lesions due to focal infections and [Ravitch] 2067—ab
SEQUESTRUMS, persistence of bacteria within, [Taylor & Davies] (20) 1998
SERBIA, Red Cross commission to, 736
SEROTHERAPY, present status of, [Cole] (114) 851
SERUM *anaphylaxis, serious forms* of, [Vernoni] (66) 948
  and vaccine institute at Naples, 1550
  Antitetanus: See Tetanus
  distribution of vaccines and, by state, [Shore] 2143—ab
  normal, anaphylactic reactions to, [Leary & others] (14) 1826
  Salvarsanized: See Salvarsanized Serum
  standardization of vaccines and, [McCoy] *378
SEWAGE disposal, sanitary system for unsewered towns, 2043—ab
SEX, comparative mortality of sexes, [Kroon] (115) 416
SEX glands, influence of, on development, 1972—E
  glands, relation to metabolism, [Murlin & Bailey] 237—ab, (171) 1113
  hormones in fetal life, 1878—E
  life of women and endocrine function of pancreas, [Carlson] 236—ab
  proportion between male and female infants born, [Maurel] (13) 594
SHERMAN'S Compound Prickly Ash Bitters misbranded, 1374—P
SHIELD to protect chest and abdomen, [Delorme] (37) 1568
SHOCK during general anesthesia, [Mann] *371
  effects of anesthesia on blood volume and relation to production of, [Epstein] 403—ab
  experimental, [Guthries] *1394
  heating cabinet for severely wounded in, [Feuillade & Blechman] (42) 759
  intravenous injections of glucose in, [Erlanger & Woodyatt] *1410
  postoperative, blood pressure, pulse pressure and hemoglobin in, [Polak] 237—ab
  shell, cases of, 1371
  shell, digest of English literature on, [Viets] *1779
  shell, disturbance in pupil reactions after, 1371, [Guillain & Barré] (41) 1384
  shell, experimental, [Mairet & Durante] (62) 1386
  shell, microscopic examination of brains of 2 dead from, without visible external injury, [Mott] (9) 2151
  shell, occurrence and symptoms [Ames] 2145—ab
  shell, prevention of, [Prince] *726
  suprarenals and, 729—E
  surgical, experimental study in [Erlanger & others] *2089
  surgical, hemoglobin value of blood in, [Bainbridge & Bullen] (55) 491
  surgical, observations on, [Henderson & others] *965
  surgical, postoperative, pulmonary fat embolism as frequent cause of, [Bissell] (112) 241
  surgical, treatment of, 203—E
  treatment of, [Bayliss] (40) 1741
SHOULDER joint, flail, with traumatic brachial paralysis, [Thomas] (22) 1998
  stiff and lame, [Bucholz] *968
SHRAPNEL balls, roentgenographic characteristics compared with bullets and other foreign bodies, [Pirie] (40) 1296
"SHUT YOUR MOUTH AND SAVE YOUR LIFE," 401
SIGMOIDOTOMY, transperitoneal, for removal of tumors in mucous membrane, [Mayo] (34) 313
SILVER poisoning, medicinal, [Steiger] (71) 1656
  preparations, organic, argyria localis due to [Islon] *87
  protein compounds, 1695
  Protein-Squibb, 1695
SIMPSON'S Medical Institute, 2206—Ml
SINGULTUS: See Hiccup
SINUS, malignant disease of throat and, radium and roentgen rays in, [Pancoast] *980
  maxillary, papilloma of, [Bilanci*oni] (67) 2005*
  tuberculous abscesses and, treatment of, [Delaney] (161) 492
SINUSITIS in infants, diagnosis and treatment of, [Skillern] *895
SIOUX CITY, patriotism of, 1181
SKIN and tendon reflexes, congenital absence of, [Bolten] (85) 1917
  cancer, analysis of 43 cases, [Sweitzer] *179
  defects, congenital, [Abt] 233—ab, (5) 588
  diphtheria, 1793—E
  diseases and fruit ingestion, [Davidson] (25) 1827
  diseases, bakers' yeast in, [Hawk & others] *1243
  diseases due to focal infection and septicemia, [Ravitch] 2067—ab
  grafting, plea for more extensive application, [Douglas & others] (46) 494
  grafts, rack for handling small deep grafts, [Davis] *997
  hemangiomas of, multiple, associated with dyspituitarism, [Head] (12) 406
SKIN ink, [Finzi] (10) 672
  meningococcal lesions, 651—E
  plastic operation after opening up fistulas into long bones, [Jalyo] (47) 1303
  reactions, experiments on local urticaria, [Sollmann] (68) 912
  sarcoma of, primary nonpigmented, [Zeisler & Zeisler] *111
  seedling grafts for repair of, [Alglave] (35) 946
  tumor, clinico-pathologic study of unusual neoplasm, combining nevus syringadenomatosus papilliferus and granuloma, [Stokes] (36) 1561
  vasomotor reflexes of, testing and recording, [Tracy] (9) 2209
SKULL: See also Brain
SKULL, autoplastic graft to close gap in, [Villandre] (45) 320
  bone flap in, bone growth from, [Sicard & others] (60) 2075
  defects, bone transplantation from scapula for, [Jones] (11) 847
  defects of face and, "soup bone" implant for, [Babcock] *352
  defects repaired by cartilaginous grafts, [Woodroffe] (3) 852
  depressions as symptoms of rachitis, [Quant] (101) 1480
  fracture, eye-ground observations in recent cases, [Kearney] *1399
  fractures of base of, at Massachusetts General Hospital, [Mixter] (19) 1563
  fractures of base of, *diagnosis* and prognosis of, [Bunts] (54) 68
  fractures of spine and, report of cases, [Cotton & Cotting] (20) 1563
  injuries repaired by thin perforated silver plates, [Mitchell] (2) 852
  injury at birth, [Stein] *331
  radiography of, and interpretation, [Villandre] (53) 156
  wounds, [Liukomovitch] (87) 763
  wounds in war, [Chiasserini] (74) 246
  wounds, localization of nerve centers by effects of, [Marie & others] (64) 674
  wounds, lumbar puncture in, [Lerda] (41) 596
  wounds of brain and, treatment at advanced station, [Mathieu] (56) 321
SLEEP, rolling head during, [Masci] (49) 855
SLEEPINESS, pathologic, with lesion in midbrain, [Francioni] (74) 1917
SLEEPING Sickness: See Trypanosomiasis
SLIDES, cleaning, new method, [Johnson] 1959—ab
SMALLPOX and vaccination in Turkey, [Hoover] 1166—ab
  disappearance *of, from Paris,* 1019
  in utero, [Rothwell] (123) 1298
  patient, validity of contract to attend, 65—Ml
  scares and vaccinations, [Gamalleya] (107) 415
SOAP, alcohol, [Nogier] (39) 946
SOCIAL hygiene, effective plan of, 387—ab
  hygiene for soldiers,. program to safeguard morals and health, 654
SODIUM arseniate in soft chancre and chancroid, [Goubeau] (36) 1568
  bicarbonate and acetanilid, 1375
  cacodylate, nondependence of protein quotient of blood serum on *rapidity of metabolism, with ref*erence to noneffect of antipyretics, thyroid extract and, [Hanson & McQuarrie] (75) 1738
  chlorid in plasma, variations in total blood solids and *concentra*tion of, in infants, [Courtney & Fales] (4) 1028
  chlorinated, neutral solution of, in chronic suppuration, [Troell] (99) 78
  citrate, *action on isolated intestine*, [Salant & Schwarze] (67) 240
  hypochlorite-Mulford, concentrated solution, 727
  oleate, hemolysis by *sodium gyno*cardate and, [Sutherland & Mitra] (11) 409
  salicylate in prophylactic treatment of wounds of joints, [Impallomeni] (75) 1656
  succinate and its hydroxy derivatives, *action on isolated intestine*, [Salant & others] (68) 240
  succinate and leukocytosis, effect of subcutaneous *administration* on leukocyte content of blood, [Hammett & others] *31
SOLDIERS: See also Army; Recruits; War; Wounds; and under *names of various diseases*, i. e., Nephritis in Soldiers; Venereal Diseases in Soldiers, etc.
SOLDIERS, American, in France, sanitary condition of, 926
  and sailors' insurance law, 650—E, 652, 1697—E, 1820
  convalescent, Red Cross to erect houses for, 206
  disabled, reeducation of, new school for, 1723
  disabled, rehabilitation of, responsibility *for,* 2014—E
  disabled, rehabilitation of, Surgeon-General's office requests information on, 1088
  disabled returned, care of, [Bailey] (76) 1650
  disease conditions among troops in United States, 1115, 1535, 1620, 1708, 1794, 1884, 1982, 2048
  families of, taking care of, 388, 1271
  functional cardiac disorders in, 202—E
  homes *for*, 920
  identification of dead, [Bosredon] (26) 2211
  invalid, medical treatment of, 1721
  mental derangements in, [Hoven] (43) 2073
  mental tests for, 207
  Microzone Medicine Company preying on, 828—E
  neurasthenic as, [Dewey] 400—C
  operations on, compulsory, 838
  professional training for, 2135
  psycho-physiologic and moral aspects of reeducation and rehabilitation of wounded, [Sollier] (54) 1655
  re-education of, [Le Dantec] (47) 2074
  returned as cases of "disordered action of heart" (D. A. H.) or "valvular disease of heart" (V. D. H.) 231, [Barringer] 1726—C
  returned, treatment of, 300
  right of, to refuse operations, [Norrlin] (93) 324
  social hygiene for, program to safeguard *morals* and health outlined by Surgeon General's Office, 654
  uncontrollable vomiting in, [Nordman & Goiffon] (55) 412
SOUTH DAKOTA medical news, 394, 1097, 1284, 2036
  state board July *examination*, 935
SOUTHERN Medical Association, meeting of, 1549
  Tuberculosis Conference, meeting of, 221, 1811
*SOY BEAN, nutritive value of, [Dan*niels & Nichols] (48) 1649
SPANISH medical mission visits France, 578
SPAS, American, and war, 1881
SPASMOPHILIA a phenomenon from loss of calcium, [Stheeman] (86) 323
SPECIALISTS wanted for service in cantonments, 294
SPECIMENS, anatomic, calcium chlorid to preserve moisture in cadavers and, [Hemler] *2107
  method for filling necropsy sections, [Robinson] *2037
SPECULUM, anal, operative, [Smiley] *121
SPEECH Defects: See also Stammering and Stuttering
SPHAGNUM moss as surgical dressing, 1790—E
SPINA BIFIDA and allied malformations, 34 cases, [Harmer] (39) 1197
SPINAL *cavity, capillary drainage of*, [Gutmann] (43) 1833
  column, gunshot wounds of, plea for noncatheterization of urinary bladder in cases of, [Besley] *638
  cord injuries, gunshot, early treatment of, [Gray] (35) 493
  cord, relation of, to spontaneous liberation of epinephrin from suprarenals, [Stewart & Rogoff] (31) 1909
  cord, surgery of, [Frazier] 1540-ab
  cord trouble from concussion of spine from distance, [Claude & Lhermitte] (90) 675
  Puncture: See *Rachicentesis*
SPINE, cancer of, [Skversky] (70) 592
  concussion of, at distance, spinal cord trouble from, [Claude & Lhermitte] (90) 675
  deformities caused by poliomyelitis, treatment of, [Hibbs] *787
  disease and injury, neurologic observations in 150 laminectomies for, [Elsberg (1) 67

SPINE, fixation by bone transplant and laminectomy and simplified technic in laminectomy, [Gaenslen] *1160
  fractures, analysis of 133 at Massachusetts General Hospital, [Hartwell] (40) 313
  fractures of skull and, report of cases from fourth surgical service, Boston City Hospital, [Cotton & Cotting] (20) 1563
  fractures with cord symptoms, indications for laminectomy in, [Hartwell] (18) 1563
  Lateral Curvature of: See Scoliosis
SPIRITUALIST, combining faith with patent medicine, 1906—Ml
SPIROCHETA icterohemorrhagica: See Jaundice
SPIROCHETA obermeieri, cultivation of, [Plotz] (57) 239
SPIROCHETES in rats, [Monti] (54) 948
  in urine in pyrexia of unknown origin, [Patterson] (4) 1566
  in urine, occurrence of, [Stoddard] (3) 1566
SPIROCHETOSIS, [Manine & Gristeau] (59) 1742
  hemorrhagic, among troops, [Siccardi] (47) 855
  icterohemorrhagic, [Valassopoulo] (38) 1653
  icterohemorrhagiae at Lima, [Arce & Ribeyro] (74) 2157
  with hemorrhagic jaundice, [Inada & others] (138) 679
SPIROSCOPIC exercises, graduated, in training respiratory apparatus, [Pescher] (47) 1915
SPLANCHNOPTOSIS, chronic duodenal obstruction in, [Vanderhoof] *510
  diagnostic sign of, [Aaron] (51) 68
SPLEEN as bacterial filter, [Ozaki] (50) 490
  miliary tubercles of, obsolete, [Klotz] (2) 67
  myeloma with metastasis to liver and, [Pepper & Pearce] (114) 1199
  proteoclastic tissue enzymes of, [Morse] (54) 850
  pulsating, in mitral and tricuspid diseases, [Manges] (16) 312
  relation of, to blood destruction and regeneration and to hemolytic jaundice, [Goto] (56) 2149
  rupture of, traumatic, [Palmer] 1733—ab
SPLENECTOMY and omentofixation in Banti's disease, [Losio] (66) 2156
  cases of, [Turner] (26) 154
  experimental, blood picture following, [Orr] (77) 1472
  in anemias and other blood states associated with enlargement of spleen and liver, [Haggard] *79
  influence of, on transplanted tumors not appreciable, [Bullock & Rohdenburg] (20) 1827
  influence of, on metabolism in anemia, [Denis] (15) 406
  late results in, [Gilbert] (91) 1112
SPLENOMEGALY, febrile, and syphilitic arthritis and gastritis, [Verdozzi] (74) 1387
SPONGES, absorbing power of cotton sponges and oiled gauze, [Sollmann] *1703
  and silk thread in wound, liability for, 1906—Ml
SPOROTRICHOSIS, additional case of, [McLean] *1774
SPOROTRICHUM councilmani found in acute arthritis of knee following injury, [Wolbach & others] (47) 490
SPRAY method of finishing and decorating as occupational hazard, 142
SPRAYING of garden crops and public health, 1083—E
SPRUE, etiology of, [Ashford] (9) 754
  toxins and serologic reactions in, [Mitchell] (10) 754
SPUTUM, tubercle bacilli in, enrichment of, [Ymaz] (82) 1120
  tubercle bacilli in, from first with active pulmonary tuberculosis, [Richet] (62) 1477
  tubercle bacilli in, isolation by Petroff's cultural method, application of, to examination of milk, [Stewart] (52) 2149
  tuberculous, 22 years old, experiments with, [Burns] (9) 1826
SPUTUM, when is diagnosis of tuberculosis without positive sputum justified, [Lyman] 590
STAIN, acid polychrome-methylene blue solution for, [Goodpasture] *998
  for protozoa and blood corpuscles, [Watabiki] (139) 679
  polychrome, for protozoa and blood corpuscles, 1024
STAMMERING and army service, [Kenyon] 664—C
STANCULEANU, G., death of, 660
STANOLIND surgical wax, 1525
STAPHYLOCOCCUS septicemia, transfusion of immune blood in, [Hooker] (19) 1998
  specific action of tin on, [Frouin] (44) 759
STARCH granules injected into rabbit's vein, fate of, [Okazaki] (29) 1914
STATISTICS, vital, importance and validity of vital statistics law, 588—Ml
  vital, insurance company offers, 1811
STATURE, inheritance of, 1263—E
STATUS epilepticus in pregnancy, [Albeck] (94) 1040
  lymphaticus, cause of sudden death in, [Symmers] (4) 2208
  lymphaticus from clinical standpoint, [Cameron] (1) 242
  lymphaticus of epileptics, roentgen ray in, [Symmers] 2204—C
STERILIZATION: See also Disinfection
STERILIZATION of surgeons' sanitary paper caps, [Manheimer] 2034
  of women, physical conditions warranting, [Hedges] 1293—ab, (2) 1998
STETHOSCOPY of mouth, mask for, [Campani] (78) 323
STILL'S DISEASE, report of case, [Rosenfeld] *115
STILLBIRTHS, reducing number of, 605—ab
STOMACH, acidity of, reduction of, [Jacobson] *1767
  cancer, advanced, exploratory laparotomy with, [Le Noir & Gardin] (29) 1568
  cancer, comparative pathology of, with reference to primary spontaneous malignant tumors of alimentary canal in mice, [Slye & others] (61) 941
  cancer, differential diagnosis by albumin in content, [Udaondo] (22) 323, (70) 949
  cancer, extent of tissue to be excised for radical removal of, [Thalhimer & Wilenksy] (27) 1736
  cancer of pyloric end of, gastrointestinal continuity restored by anticolic gastrojejunostomy following partial gastrectomy for, [Balfour] (107) 1829
  cancer, operative treatment, [Bengolea] (87) 414
  cancer simulating malaria, [Rovsing] (88) 1836
  content, dissolved albumin in, differential value of, [Udaondo] (82) 323, (70) 949
  disease, hot drinks and foods as factor in, [Manquat] (54) 1476
  disturbances in gassed, [Agasse-Lafont & Roux] (23) 2211
  fat-splitting ferment of, new evidence regarding, 2119—E
  foreign bodies in, [Eliason] *2106
  foreign bodies in, open safety pin in infant's duodenum and, [Perkins] *2104
  hemorrhage, surgical significance of, [Balfour] *465
  hour-glass, operative treatment of, [Webb] (26) 1736
  hunger contractions of empty, influence of experimental ulcers of stomach and duodenum on, [Dundon] (14) 1294
  insufficiency, feces in, [Goiffon] (31) 1568
  lactic acid in, errors in deductions from presence of, [Rodella] (75) 2075
  physiology of, [Meyer & Carlson] (13) 1294
  resection, anatomic findings and outcome after, [Fichera] (80) 2005
  sarcoma of, primary, [Medina & Egaña (93) 158
  secretion, hunger and appetite secretion of gastric juice in infant's stomach, [Taylor] (2) 1562
  secretions in infancy 1463—E
STOMACH, surgery of, [Mayo] 1540—ab
  surgery, prognosis of, [Pauchet] (73) 496
  symptoms in nephritis with retention of nitrogenous waste products in blood, [Chace] (3) 67
  syphilis, [Downes] (104) 1566
  tumors in rabbits fed with wool fat, [Kon] (105) 2006
  ulcer, anastomosis between gallbladder and stomach in treatment of gastric and duodenal ulcers, [Escudero & Finochietto] (70) 76
  ulcer of duodenum and, chronic, surgical treatment and end results, [Devine] (14) 1301
  ulcer of duodenum and, experimental, influence of, on hunger contractions of empty stomach, [Dundon] (14) 1294
  ulcer, peptic, in jejunum after gastro-enterostomy, [Urrutia] (132) 678
  ulcer, perforated, free graft from peritoneum to close, [Raabe] (94) 763
STOMATITIS, mercurial, pathogenesis, prophylaxis and treatment, [Favre] (34) 1302
STOOL: See Feces
STOVAIN, action of, on bladder, [Waddell] (73) 1738
STRANDGARD'S T. B. Medicine, 2060—P
STREPTOBACILLUS from urine, [Celler & Thalhimer] (36) 1030
STREPTOCOCCUS in recent epidemic of acute respiratory infections, rôle of, [Cummings] (57) 755
  relation of diphtheroid group of organisms to, [Bellon] (50) 671
  studies on pneumococci and, [Aschner] (52) 1380
STROPHANTHUS derivatives, intravenous injections of, indications and contraindications for, [Vaquez & Lutembacher] (22) 2152
STRYCHNIN, action of, on tetanus, [Burridge] (21) 72
  fate of, in body, [Hatcher & Eggleston] (77) 1738, 2120—E
STUDENTS, courses for, at front, 2135
  drafted, and surgeon general, 652
  kept back by war, special dispensation to, 747
  medical, and draft, [Baker] 228-C, 475—E, 570—E, 649—E, 650—E, 735—E, 827—E, [Hough] 933—C
  medical, and hospital interns may join enlisted Medical Reserve Corps and be discharged by local board from service in National Army, 830
  medical, and interns, exemption of, 917
  medical, and shortage of interns, 571—E
  medical, called to colors, special privileges granted to, 136
  medical, conscripted, 290—E, [Sandock] 751—C
  medical, disposal of drafted pharmacists, physicians and, 652
  medical, distribution of, by states, 538
  medical, exemption of, [Goldwater] 583—C, 1011, 1089, 1270
  medical, from schools recognized for exemption, 1178
  medical, number of, 537
  medical, regulations under selective service law concerning hospital interns and, 1977
  medical, shortage of, in England, 1455
  medical, status of, in France, 578
  premedical and medical, in officers' training camps, 46
  premedical, drafting, [Beyhan] 1103—C
STUPOR, consciousness during, [Wimmer] (98) 248
STUTTERING, paroxysmal, [Briant & Philippe] (35) 1116
STYLOPHONE vibrator, [Stefani] (78) 675
SUBMAXILLARY GLAND, tuberculous processes in, [Landaburu] (85) 2076
SUGAR content, low, sign of insufficient secretion, 828—E
  economy in prescribing glycerin and, 839
  in blood at birth, [Cannata] (52) 1570
  metabolism, interrelation of surviving heart and pancreas of dog in, [Clark] (39) 1909
  solution, isotonic, intravenous injections of, in septicemia [Audain & Masmonteil] (51) 2154
SUICIDES from poison, [Spinner] (106) 676
  in New York City, [Wynne] 1597-ab
  rates, negroes lower than whites, 1254—ab
SULPHUR, colloidal, in trench rheumatism and allied conditions, [Comrie] (33) 410
  metabolism in cancer, [Kahn] (59) 941
  metabolism of, [Lewis] (59) 850
SUN, tropical, acclimatization to, 1430—E
SUNLIGHT Therapy: See Heliotherapy
SUPRARENALS and fatal superficial burns, [Weiskotten] *776
  and shock, 729—E
  cystic disease of, [Saviozzi] (54) 597
  dyspepsia, [Loeper & others] (40) 947, (35) 1653
  epinephrin secretion of, and experimental hyperglycemias [Stewart & Rogoff] (12) 2147
  functioning of, in infections, [Goormaghtigh] (39) 1475
  hemorrhage, bilateral, case of, [Eadie] (17) 944
  hemorrhage in anthrax, [Roger] (40) 759
  in malaria, [Garin & others] (55) 1915
  influence of asphyxia on rate of liberation of epinephrin from, [Stewart & Rogoff] (85) 315
  influence of, on genitalia, [Vincent] 236—ab, (166) 1113
  insufficiency, residual chronic, left after epidemic jaundice, [Notari] (77) 1207
  quantitative experiments on liberation of epinephrin from, after section of nerves, with reference to indispensability of epinephrin to organism, [Stewart & Rogoff] (84) 315
  rate of liberation of epinephrin from, effect of stimulation of sensory nerves on, [Stewart & Rogoff] (32) 1909
  relation of rate of spontaneous liberation of epinephrin to rate of blood flow through suprarenals, [Stewart & Rogoff] (7) 1294
  spontaneous liberation of epinephrin from, relation of spinal cord to, [Stewart & Rogoff] (31) 1909
  Substance: See Epinephrin
SURGEON, army, work of, [Gorgas] 1538—ab
  contract, and special examiners, 1360
  contract, commissions for, 389
  contract, longevity pay for, 389
  contract, orders to, 657, 920, 1182, 1450
  division, announced, 736
  liability in personal injury case for mistake of, 66—Ml
  marine, taking injured seaman to other than, 231—Ml
  military, abroad, [Huntington] 1103—C
  naval, courses for assistant, 47
  navy, work of, [Braisted] 1538—ab
  new assistant surgeons in United States Navy, 1177
SURGEON-GENERAL'S office, division of internal medicine of, 1359
SURGERY, British, at front, [Bowlby & Wallace] (1) 153
  British, development in hospitals on lines of communication in France, [Makins] (9) 242
  end-results of, uniform and generally applicable system for reporting, [Stanton] *2166
  general, relation of gynecology to, past and present, [Longyear] *501
  Germany and progress in, 1011—E
  military, complete operation at advanced station, [Chalier] (48) 320
  military, flying surgical units, [Plisson & Quénu] (30) 1914
  military, from Paré to Carrel, [Helme] (37) 1475
  military, present status of, at casualty clearing stations, [Speed] *1343
  military, standardization of practice of, [Crile] 291
  military textbooks dealing with advance of medicine and, during war, [Martin] 388
  plastic, school of, opened, 1615
  postoperative eventration, 2 cases, [dré Kollas] (134) 679
  prosthetic, with prostheses under volitional control, [Vanghetti] (61) 321
  recent medicine and, in Germany, [Leroy] (40) 1303

SURGERY, status of medicine and, 583
  systematization of surgical service, [Pool & Bancroft] *1599
  unnecessary operations and incompetent surgeons, problem of, [Bevan] *161
SUTURES, slip noose deep sutures, [Chaput] (31) 946
SWEAT GLANDS, changes in, with kidney insufficiency, [Montalbo] (56) 948
SWIFT-ELLIS Treatment of Syphilis: See Salvarsanized Serum
SWIFT'S Sure Specific, 663—P
SWINDLER, warning against, 221, 2056, 2134
SYCOSIS from uricacidemia, [Vignolo-Lutati] (52) 596
SYMPATHECTOMY, periarterial, [Leriche] (60) 1656
  periarterial, for posttraumatic reflex nervous disturbances, [Leriche & Heitz] (48) 1654
SYMPHYSECTOMY before delivery, indications for, [Fieux] (13) 317
SYNCYTIOMA malignum, review of literature and report of case, [Anderson] (121) 1298
SYNOVIAL cysts, [Finochietto] (94) 2076
SYNTHETICS, biochemical processes for synthetic chemicals, 735—E
  common sense and synthetics, [Lanski] 665—C
SYPHILIS and internal medicine, [McLester] (126) 242
  and masculinity, [Girauld & Tissier] (24) 1301
  arthritis, gastritis and febrile splenomegaly due to, [Verdozzi] (74) 1387
  bladder, [Fowler] *1399
  Bruck's serochemical test for, 1463, [Stillians] *2014
  Bruck's serochemical test for, 400 cases compared with Wassermann reaction, [Smith & Solomon] (48) 1110
  central nerve, what reliance can be placed on laboratory findings in, [Sterne] 1907—ab
  cerebrospinal, prophylaxis in, [Corbus] *2087
  coagulo reaction in, researches on, [Uemura] (8) 1469
  diagnosis and treatment of, 907
  family epidemic of, [Jeanselme] 1342—ab
  free diagnosis of, 482
  gel test for, [Strickler] (37) 1564
  heart and aorta [Fontaine] 2144-ab
  heart disease and, [Gaucher] (48) 1742
  in and about joints, latent manifestations of, [Hatch] 2066—ab
  in army, 126—ab
  in army, prophylaxis of, [Moscati] (63) 1118
  in surgery, rôle of, [Gellhorn] 2066—ab
  influence of treatment of, on different reactions in cerebrospinal fluid, [With] (103) 2158
  inherited, cirrhosis of liver due to, in 2 children, [Cozzolino] (58) 761
  inherited, cirrhosis of liver in child with, [Pentagna] (61) 2156
  inherited, overlooked, [Sabouraud] (47) 244
  inherited, vitiligo with, 2 cases, [Arullani] (52) 1118
  instructions for those having, [Pusey & others] *1348
  intraspinal therapy of, recent developments in, [Berghausen] 1907—ab
  latent, or clinically inactive, in Canal Zone, [Qualls] (10) 1908
  liver, tertiary, [Furno] (83) 1039
  lung, [Leredde] (49) 1655
  lung, case of, [Castex & Denis] (88) 158
  lung, roentgen diagnosis of, [Watkins] (17) 1908
  lymphocytosis in, [Mayer & Gourdy] (95) 1121
  nervous system and psychoses, analysis of cases showing divergence in clinical and serologic pictures, [Lowrey] (3) 753
  nervous system, intraspinal injections in, truth about, [Sachs] *681, [Fordyce] *1482
  nervous system, intraspinal treatment of, [Swift] *2092
  nervous system, response to treatment in, [Swift] (21) 589
  nervous system, treatment of, [Haller] (62) 69
  Noguchi's complement fixation test for, modification of, [Howard] (22) 1379
  psychoses other than paretic dementia in, [Gordon] *1103
  pulmonary artery; aneurysm of left upper division; spirochete pallida in wall of artery and aneurysmal sac, [Warthin] (9) 1908
  reinfection with, [Bals] (102) 2158
  serodiagnosis of, [Thompson] (22) 589, [Spordelli & Fischer] (78) 949
  stomach, [Downes] (101) 1566
  treatment of, [Chevallier] (11) 1915
  treatment of, intensive combined, [Stokes] 1907—ab
  treatment, scheme to sell, 828—E
  visceral findings in 100 syphilitics, [Howard] (15) 312
SYRINGADENOMA, [Stokes] (36) 1564
SYRINGOMYELIA, case of, [Fischer] *888
  joint lesions with, [Askgaard] (116) 1660
  roentgenotherapy of, [Nordentoft] (108) 1122

SOCIETIES

A.—Association.
Acad.—Academy.
Am.—American.
Coll.—College.
Conf.—Conference.
Cong.—Congress.
Conv.—Convention.
Dist.—District.
Hosp.—Hospital.
Internat.—International.
M.—Medical or Medicine.
Nat.—National.
Phar.—Pharmaceutical.
Phys.—Physician.
Ry.—Railway.
S.—Society.
Surg.—Surgical, Surgeon or Surgery.

Am. Acad. of Ophthalmology and Oto-Laryngology, 1369, 1720
Am. A. for the Prevention of Infant Mortality, 1284, 1455
Am. A. of Anesthetists, 133, 403
Am. A. of Obstetricians and Gynecologists, 395, 1293, 1377, 1466
Am. A. of Ry. Surg., 1455
Am. Gynecological S., 114, 235
Am. Pediatric S., 145, 233, 310
Am. Public Health A., 660, 1090, 1550
British M. A., 396, 747, 1552, 1898
Canadian M. A., 746
Canadian Public Health A., 482, 1188
Clinical Cong. of Surg. of North Am., 1285, 1370, 1434, 1438, 1455, 1538
Colo. State M. S., 1282, 1467, 1561
Conf. for the Control of Venereal Diseases, 1088
Conf. to Study Problem of Reeducation of War Cripples, 135
Del. State M. S., 1733
French Cong. of the Mutilated, 1457
Idaho State M. A., 218
Ind. State M. A., 836, 1186, 1367, 1468, 1560
Interstate Anesthetists A., 1455, 1734
Kalamazoo Acad. of M., 2125
Ky. State M. A., 1808, 2067, 2144
London Royal S., 2134
Maine M. A., 298
Medico-Chirurgical Reunion of the Third French Army, 53, 1019, 1550
Military Surg. A. of the U. S., 578, 1013, 1087, 1266, 1272, 1355, 1361, 1362
Min. State M. A., 1452, 1823
Mississippi Valley M. A., 746, 1455, 1907
Mont. State M. A., 298
Missouri Valley M. S., 746, 1188
Nat. M. A. (colored), 52, 1188
Nev. State M. A., 1547
New Brunswick M. S., 746
N. H. M. S., 298
N. J. M. S., 219, 1438
N. M. M S., 1453
N. Y. Acad. of M., 1186, 1283, 1368, 1453, 1547, 1719, 2055, 2132
N. Y. Neurological S., 2145
Nova Scotia M. S., 746
Ontario M. Council, 52
Ore. State M. A., 220
Paris Acad. of M., 302, 397, 838, 926, 1100, 1371, 1457, 1458, 1722, 1990, 2134
Paris Acad. of Sciences, 136, 222, 398, 1457, 1458, 1722, 2057
Paris Clinical S. of Mental M., 1458
Paris Medico-Pyschological S., 1458
Paris Psychiatric S., 1458
Paris S. of Comparative Pathology, 661, 1897
Paris S. of Surg., 55, 302, 398, 578, 661, 747, 838, 1188, 1722, 1812, 1897, 1990
Pa. State M. S., 1187
Philadelphia Co. M. S., 2123
Philadelphia Coll. of Phys., 1284, 1536
Prince Edward Island M. S., 746
Seaboard M. A. of Va. and N. C., 2133
Senior Military M. A., 1014
Southern M. A., 1519, 1897, 2066, 2143, 2207
Southern Tuberculosis Conf., 221, 1811
Southwest M. A., 1455
Swiss Cancer Research A., 1008
Tri-State Dist. M. S. of Ill., Ia., and Mo., 578, 1188
Tri-State M. S. of Ind., O., and Mich., 1989
Utah State M. A., 1187
Vt. State M. S., 1451
Wash. State M. A., 51, 299, 1633
W. Va. State M. A., 1369
Wis. State M. S., 1018, 1369

T

TABES DORSALIS and pregnancy, coincident, [Allen] *979
  hematemesis in gastric crises in, [Udaondo] (81) 114
  pruritis an early symptom, [Vignolo-Lutati] (89) 497
  spontaneous muscle sign of, [Cominelli] (117) 677
TACHYCARDIA, test, after exertion, [Aubertin] (44) 2001
TACHYPHYLAXIS, [Busquet] (38) 2211
TACHYPNEA, inhalation of ether in mutism, dysphonia and, of hysteric origin, [Trocello] (81) 1039
TALIPES, congenital, importance of ligaments of ankle in correction of, [Zadek & Barnett] *1057
  planus, treatment of, [v. Salis] (44) 1569
TAR and paraffin mixture for burns and frostbites, [Parasporl] (61) 761
TARRANT'S Cubebs and Copaiba misbranded, 1374—P
TARTAR EMETIC in infantile kala-azar, [Longo] (75) 1038
  in kala-azar, including use in young children [Rogers] (6) 1383
  in malaria, [Greig] (14) 409, [Falconer & Anderson] (14) 2210
  in venereal granuloma, 3 cases, [Bonne] (4) 71
TATTOOING, corneal, india ink infiltration substitute for, [Verhoeff] *1420, [Allport] 1641—C, [Wyler] 1902—C
TAUROCOL, 1374—P
TAXES, just and unjust, 1880—E
TEETH, caries of, popular impressions about, 829—E
  defective, as affecting military service, [Galli] (60) 75
  defectively developed, and alopecia areata, connection between, [Sabouraud] (46) 1303
  devitalized, retention without danger of focal infection, [Rhein] *974
  dyspepsia after loss of, [Mollière] (22) 2211
  first, importance of vitality of, for physiologic dentition, [Luciani] (44) 156
  loss of, as affecting military service, [Villa] (57) 760
  metastatic eye infection from primary dental foci, frequency of, [Levy & others] *194
TELEPHONE, receiving cap for wireless telegraph operators and, [Bauvallet] (40) 1035
TEMPERATURE as guide to diagnosis, prognosis and surgical treatment in craniocerebral traumatisms, [Courtney] (17) 1563
  body, physiologic observations on, 1011—ab
  effect of, on rhythm of excised segments from different parts of intestines, [Taylor & Alvarez] (7) 1735
  high, is death from, due to accumulation of acid in tissues, [Mayer] (13) 2147
  influence of ergotoxin on, [Githens] (27) 2069
  subnormal, periods of, as epileptic equivalents after trephining, [Carnot & de Kerdrel] (42) 74
TENDON operations for gunshot injuries of hand, [Mayer] *2107
  reflexes, congenital absence of skin reflexes and, [Bolton] (85) 1917
TENDON stumps, suture of, over gap by mobilizing attachment to bone, [Mosti] (80) 1387
  suture, [Harmer] (8) 2209
TENNESSEE medical news, 51, 482, 1632
TEST: See also Reaction
TEST MEAL, fractional, [Horner] *1931
TESTICLE, tumor of, in horse, [Kimura] (109) 2006
TESTIMONY, expert, bases for, 587—Ml
  physicians may testify as to what is learned after treating patient, 1108—Ml
TETANOPHOBIA and tetanus, [Couteaud] (45) 1915
TETANUS, action of strychnin on, [Burridge] (21) 72
  and tetanophobia, [Couteaud] (45) 1915
  antitetanus serum in prevention, [Cheret] (28) 945
  chilling of feet predisposing to, 2131
  following laparotomy for ectopic pregnancy, magnesium sulphate and antitetanic serum in, [Casler] 2143—ab
  in court plaster, 1101—ab
  in military hospitals, 1371
  pernicious malaria simulating, [Majoli & Paoletti] (66) 2005
  recurring, after war wounds, [Vernoni] (78) 1657
  reinjections of antitetanic serum before operation, 302
  serotherapy, 398
  toxin, method of isolating, 1435—E, [London & Aristovsky] (88) 1479
  treated in home military hospitals, [Bruce] (31) 410, (15) 1383
TETANY and blood calcium, toxicity of phosphates in relation to, [Binger] (65) 942
  pathogenesis of, [Bolten] (89) 1389
TETHELIN, effect of, on experimental tuberculosis, [Corper] (31) 1030
  influence of, on early growth of white mouse, [Robertson & Delprat] (94) 1198
  possible derivation of active principle of posterior lobe of pituitary body from tethelin produced by anterior lobe, [Schmidt & May] (68) 315
  properties and action of, [Schmidt] (69) 315
TEXAS medical news, 1098, 1454, 1896
  state board June examination, 1903
THERAPEUTICS and pharmacology, cooperation between, [Hewlett] *1123
  crucial test of therapeutic evidence, [Sollmann] *198
THERMALGIA, [Stopford] (19) 1033
THIOCOL-ROCHE, 911
THIRD persons, information derived from and in presence of, 1823-Ml
THORAX, empyema of, [Lilienthal] (26) 1109
  fat in wall of, sign of disease below, [Landouzy] (68) 2075
  fistulas in, rebellious, [Bérard & Dunet] (43) 1915
  inflammatory process in base of, [Mouriquand] (80) 496
  intrathoracic cyst with calcification, [Heuer] (29) 68
  projectiles in pelvis and, tardy extraction of, [Charbonnel] (37) 854
  protection of abdomen and, of combatants, 1457
  shield to protect abdomen and, [Delorme] (37) 1568
  wounds, gunshot, [Bradford] (17) 853
  wounds, gunshot, seen at base hospital in France, [Soltau & Alexander] (36) 1384
  wounds, gunshot, penetrating, early operative treatment, [Hathaway] (6) 2002
  wounds, gunshot with retained missiles, later history of, [Rudolf] (29) 2073
  wounds in war, indications for early operation for, [Combier & Murard] (26) 317
  wounds of lung and, emergency treatment of, [Morelli] (51) 855
  wounds, severe penetrating, surgical treatment of, in casualty clearing station, [Anderson] (2) 2002
  wounds, severe, surgical treatment of, [Roberts & Craig] (3) 2002
  wounds, treatment of, [Elliott] (19) 1474

"THORN'S Copaiba and Sarsaparilla" and Tarrant's Cubebs and Copaiba misbranded, 1374—P
THROAT cancer, contributory causes, [Low] (10) 944
  fastening tube in, [Bernasconi] (42) 1117
  focal infection in nose and, diagnosis and elimination, [Patterson] 1824—ab
  malignant disease of sinuses and, radium and roentgen rays in, [Pancoast] *980
THROMBO-ANGEITIS obliterans, pathologic and clinical aspects of, [Buerger] (9) 1029
  obliterans, peripheral gangrene due to, femoral vein ligation and sodium citrate injections in, [Ginsburg] (10) 1029
THROMBOPLASTIN and euglobulin in tuberculous hemoptysis, [Mannheimer & Wang] (7) 1826
THROMBOSIS and embolism of mesenteric vessels, [Hedlund] (124) 2008
THRUSH parasite, new, [Pijper] (32) 854
THUMB, gangrene of, after application of compound solution of cresol, [von Stapelmohr] (100) 248
THLMOTOXIC serum, [Ogata] (91) 77
THYMUS and rickets, 1700—E
  cells, action of immune serums on lymphocytes and, [Pappenheimer] (50) 590
  dwarf growth, [Krabbe] (87) 1574
  enlargement, roentgen ray in, [Friedländer] 334—ab, (4) 311
  transplantation in rabbits and relation of thymus to sexual maturity, [Marine & Manley] (50) 1910
THYROID: See also Goiter; Parathyroid; Thymus
THYROID, behavior of, in asphyxia, [Pellegrini] (97) 498
  boiling water injections, [Ceballos & Bacigalupo] (90) 2076
  deficiency and chronic infections, [Beck] 2207—ab
  disease, atypical, (formo fruste), [Sturgis] (130) 1299
  extract, nondependence of protein quotient of blood serum on rapidity of metabolism with reference to antipyretics, sodium cacodylate and, [Hanson & McQuarrie] (75) 1738
  extracts, standardization of, method for, [Rogoff] (83) 1298
  feeding, influence on carbohydrate metabolism, [Kuriyama] (12) 238
  heart trouble due to goiter, [Enthoven] (89) 324
  hyperplasia, experimental, attempts to produce, [Burget] (9) 2146
  in gynecology, [Hayd] 1466—ab
  in gynecology and obstetrics, [Marine] 236—ab, (163) 1113
  insufficiency, paroxysmal, and tuberculosis, [Albina] (84) 1120
  like activity, attempt to produce substance with, by artificial iodization of proteins, [Rogoff & Marine] (26) 2069
  malfunction, defects in young of animals because of, 43—E
  medication, effect of, on basal metabolism, renal function and nitrogen balance in chronic nephritis and hypothyroidism, [Bowen & Boothby] (32) 2070
  metastasis, cauda equina disease following, [Skversky] (70) 592
  overactivity, index of, 730—E
  parathyroid and carbohydrate metabolism, 828—E
TIBIA, lesions of tibial tubercle in adolescents, [Kawamura] (75) 1572
  tuberosity of, pain and swelling of, [Lollini] (57) 948
TIMES-PICAYUNE throws out medical frauds, 2138—P
TIN in furunculosis, [Bruhl & Michaux] (32) 1653
  specific action of, on staphylococci, [Frouin] (44) 759
TISSUE fibers, alleged formation of, from fibrin, 1696—E
  growth and degeneration and induced cancer immunity, [Bullock & Rohdenburg] (19) 1827
TOE, flexion of big toe on percussion of Achilles tendon, [Villaret & Faure-Beaulieu] (66) 1656
TOEING in, 1996
TOLUENE-PARASULPHONDICHLORAMIN, use of, in infected wounds, [Dakin & others] *27
TONGUE, suffocation in pneumonia from falling back of root of, [Jorgensen] (88) 1574
TONICS, bitter, [Carlson] 33—ab
TONSIL, border line, [McClure] 2144—ab
  lingual, enlargement of, in whooping cough, [Ruckle] 2139—C
  lingual, hypertrophy of, [Turtur] (90) 497
  local anesthesia of, simplified technic for, [Patton] *38
  sarcoma of, [Pancoast] *980
  suture instrument, [Hourn] *999
  tuberculosis of, primary, in children, [Mitchell] (24) 944, 1436-E
TONSILLECTOME, new, [Lamb] *998
TONSILLECTOMY, complications and end-results of adenectomy and, [Iddings] 1469—ab
  effect of, on focal infection, [Gillespie] 1824—ab
  voice impairment resulting from, [Kenyon] *709
TOOTH: See Teeth
TOPEKA, Kansas, record of, for volunteers, 1355
TORULA in man, [Pierson] *2179
TRACHEA, stenosis of larynx and, mechanical device for dilatation with, [Jouty] (63) 1656
  wounds of larynx, esophagus and, in war, [Lannois & others] (22) 317
TRACHOMA, civic as well as military problem, [Tenner] 227—C
  clinical course and diagnosis of, [Foster] *1837
  danger from infection with intestinal parasites and, of army recruits, 913—E
TRAINING camps, news of, 830, 919, 1012, 1087, 1274, 1440, 1532, 1615, 1617, 1703, 1883, 1917, 2122
TRANSFUSION: See Blood Transfusion
TRANSPLANTATION: See also Grafts
TRANSPLANTATION of hamstring muscles for quadriceps palsy, [Kleinberg] (23) 312
TRAUMA and cancer, [Moreau] (28) 1302
  and pleuropulmonary tuberculosis, [Carles & Charrier] (38) 854
  and primary mouse tumors, [Marsh] (62) 941
  hysteroneuroses, clinical unity of, due to, [Ferrand] (41) 318
  in psychiatry, [Rossi] (71) 2156
TREATMENT, reasonable, refusing to submit to, results of evidence, 1822—Ml
TRENCH Foot: See Foot, Trench
TREPONEMA Pallidum: See Spirochaeta Pallida
TRICHINOSIS in Denmark, [Fibiger] (52) 2212
  serum therapy for, [Schwartz] *884
TRICHOCEPHALOSIS, intestinal, fatal case of, [da Matta] (81) 247
TRICHOMASTIX (n.sp.) parasitic in human intestine, [Chatterjee] (24) 2072
TRIMETHOL, 485—P
TRINER'S American Elixir of Bitter Wine, 139—P
TRINITROTOLUENE, danger to munition workers from, 1353—E
  effect on blood, [Panton] (58) 674
  poisoning among munition workers, [Hamilton] *2037, 2041—E
TROPICAL SUN, acclimatization to, 1430—E
TRYPANOSOMA duttoni in Lima mice, [Ribeyro & Raffo] (79) 2076
TSUTSUGAMUSHI, mite carrier of, life cycle of, [Miyajima & Okumura] (136) 679
TUBERCULIN, experimental tuberculosis in guinea-pigs following preliminary treatment with, by nose, [Sewall & others] (4) 148
  focal reaction after injection of, in lupus, [Fønss] (143) 500
  human and bovine, applied by method of Von Pirquet in tuberculosis of bones and joints, reactions to, [Gauvain] (2) 1652
  in prophylaxis of tuberculosis, present status of, [Bertarelli] (79) 1657
  individual quantitative dosage of, determined by cutaneous reaction, [Sieber] (13) 1029
  inunctions in pretuberculosis in children, [Blumenau] (102) 1121
  local applications of, in tuberculous eyes, [Ellis & Gay] (21) 757
  reaction, diagnostic, [van de Kasteele] (110) 2078
TUBERCULOSIS, American sanitary aid in fight against, 747
  anatomic research on prevalence of, [Reinhart] (43) 1569
  and paroxysmal thyroid insufficiency, [Albina] (84) 1120
  apical, of adults, relation to focal tuberculosis of children, [Opie] [56] 590
  bacilli, biology of, [Jauregui] (71) 949
  bacilli in breast milk of tuberculous women, [Wang & Coonley] *531
  bacilli in sputum, enrichment of, [Ymaz] (82) 1120
  bacilli in sputum, Petroff's cultural method of isolation of, application of, to examination of milk, [Stewart] (52) 2149
  bacilli, parafuchsin as stain for, [Lewis & Krause] (3) 148
  bacilli, pleural reaction to inoculation with, in vaccinated and normal guinea pigs, [Paterson] (11) 939
  bacilli, vitality of, outside body, [Soparker] (5) 409
  bone and joint, influence of sun's rays in, [Frieberg] (17) 1109
  bone and joint, reactions to human and bovine tuberculin applied by method of Von Pirquet in, [Gauvain] (2) 1652
  bone, roentgenotherapy of, [Albert-Weil] (35) 318
  bovine infection of, in man, incidence of, [Wang] (19) 944
  chair of, 1457
  conference, 300
  Cure, Strandgard's, 2060—P
  delayed or "latent," [Delepine] (15) 673
  diagnosis of, in military service, [Bushnell] (10) 939
  diagnosis without positive sputum, when justified, [Lyman] (35) 590
  dispensary control of, 667—ab
  dispensary treatment of, regulations governing, 2098—ab
  ether anesthesia in, [Savage] (116) 152
  experimental, effect of tethelin on, [Corper] (31) 1030
  experimental, in guinea-pigs following preliminary treatment with tuberculin by nose, [Sewall & others] (4) 148
  eyes, local application of tuberculin in, [Ellis & Gay] (21) 757
  fasting in gastro-intestinal disorders in tuberculous, [Spivak] 1467—ab
  fight against, in France, 1977
  fight against, recent progress in, [Danyez] (56) 1477
  focal, of children, relation of apical tuberculosis of adults to, [Opie] (56) 590
  Framingham health and tuberculosis demonstration, [Armstrong] *1051
  from standpoint of military medicine, [Maraglioni] (73) 1387
  gold therapy of, [DeWitt] (25) 1295
  ileocecal, [Guérrin] (38) 73
  in army, [Palmer] 59—C, 482, 1098
  in army, incidence of, 1266—E
  in army, isolation and treatment of soldiers at Paris, [Mesureur] (43) 411
  in children, diagnosis of, [Chadwick & Morgan] (36) 590
  incipient, breath sounds in, [Bray] *1762
  iodin in, [Boudreau] (49) 412
  kidney, chronic, curability of, [Hallé] (48) 2154
  kidney, utilization of immune response in, [Bonine] (1) 1469
  knee joint, operative treatment of, in adults, [Osgood & Bull] *1162
  larynx, diagnosis of, [Dworetzky] *619
  larynx, rest from vocalization in, [Porcher] 1291—C
  larynx, treatment of pain in, [Cetrangolo] (122) 499
  latency in, [Martin] 2144—ab
  lymph nodes, 568—E
  lymph nodes, frequency, origin and relation to other tuberculous lesions, especially pulmonary, [Harbitz] (64) 591
  lymph nodes, radiotherapy of, [Ratera & Ratera] (67) 856
  medical, [Alfaro] (87) 158
  methods and results of examinations by cardiovascular and tuberculosis commission at second Plattsburg training camp for Reserve Officers, [Francine & others] *2110
TUBERCULOSIS, Mississippi Valley conference on, 1098
  mortality from, 482, 1820
  mortality from, at Rio de Janeiro, [Barbosa] (76) 1479
  mortality from, during mobilization period in Netherlands, [Sajet] (88) 763
  mortality from, in Netherlands, [Saltet] (81) 949
  national prophylaxis of, [Coni] (97) 1658
  on virgin soil, [Marrable] (47) 673
  pleural effusion in tuberculous differential cell count of, [Golay] (67) 1478
  pleuropulmonary, and military service, [Laubry & Marre] (41) 854
  pleuropulmonary, and traumatism, [Carles & Charrier] (38) 854
  pleuropulmonary, myotonic reaction with, [Loeper & Codet] (36) 1653
  pleuropulmonary, reaction to pinching muscle over lesion, [Loeper & Codet] (51) 1205
  pretuberculosis in children and tuberculin inunctions in, [Blumenau] (102) 1121
  problem, public health nurse in solution of, [Heizer] 2143—ab
  pulmonary, active, sputum may contain tubercle bacilli from first in, [Richet] (62) 1477
  pulmonary, and climate, [Trask] 65
  pulmonary, and other forms of inthrathoracic tuberculosis, [Gekler] (13) 406
  pulmonary, and war, [Morichau-Beauchant] (50) 760
  pulmonary, Arneth's leukocyte count in, in pregnant, [Van Voornveld] (58) 245
  pulmonary, artificial pneumothorax in, deductions from 4½ years' use of, [Minor] (27) 2147
  pulmonary, artificial pneumothorax in, present status of, [Beggs] (26) 2147
  pulmonary, beneficent secondary pleurisy with, [Murard & Marotte] 854
  pulmonary, diagnosis of, [Hamman] (2) 148, [Barlaro] (96) 159, [Murri] (63) 2156
  pulmonary, difficulty of individualizing diagnosis and prognosis in, [Alfaro] (82) 414
  pulmonary, fibrous form of, [Corvetto] (90) 1040
  pulmonary, in children, [Navarro] [100) 1744
  pulmonary, in infancy, prognosis of, [Hempelmann] (27) 68
  pulmonary, in Norwegian province, [Holet] (78) 1306
  pulmonary, occult blood in stools with, [Lange] (89) 1574
  pulmonary, relative value of 5 diagnostic procedures in 400 cases investigated by group study method, [Ochsner] (98) 2150
  pulmonary, roentgen rays in diagnosis of, [Manges] (164) 492
  pulmonary, spirochete and mycosis bronchitis simulating, [Castellani] (55) 1036
  serodiagnosis of incipient, [Gradwohl] 1908—ab
  serodiagnosis with Besredka's antigen, [Bronfenbrenner] (51) 1910
  submaxillary gland, [Landabutu] (85) 2076
  surgical, artificial heliotherapy in lupus and, [Reyn & Ernst] (97) 78
  surgical, dosage of tuberculin in, [Sieber] (13) 1029
  surgical, roentgenotherapy of, [van Ree] (81) 1917
  time in treatment of. importance of, [Kirk] (123) 1651
  tonsils, primary, in children, [Mitchell] (24) 944, 1436—E
  Tuberculin in,: See Tuberculin
  urinary tract in women, degeneration of leukocytes in urine diagnostic aid in, [Wynne] (20) 670
  valid provisions for dealing with, 1377—Ml
  verrucous, verrucous lesions simulating, [Gougerot] (35) 2211
  von Pirquet test as controlled by necropsy findings, value of, [Knox] (5) 311
  war activities for antituberculosis associations, 2110—ab
  war program for nation, [Biggs] (6) 405
  Wassermann and luetin reactions in, [Corper & others] (29) 2147
TUMORS: See also under names of various organs

TUMORS and trauma, [Marsh] (62) 941
  experimental, preceding injury of tissues as factor in development of, [Fichera] (78) 2005
  grafts, alien, in developing embryo, [Acconci] (98) 498
  growth and vitamins, 1526—E
  malignant, deep roentgenotherapy in, results in 258 cases, [Holding] (9) 311
  malignant, miostagmin reaction in, [Roffo] (95) 159
  malignant mouse, homologous immunity to, [Tsurumi] (58) 941
  metastasis of, [Symmers] (16) 754
  of gasserian ganglion, report of operative case, [Sachs] (10) 847
  radioactive substances in, [Duane] (6) 2209
  Recklinghausen, of Wolffian body, [Forsner] (83) 858
  transplanted, influence of splenectomy on, not appreciable, [Bullock & Rohdenburg] (20) 1827
  transplanted, loss of power to produce transformation in stroma, [Woglom] (21) 1827
TUNING-FORK test for disease of nasal sinuses, [Oppikofer] (67) 1387
TURKEY salad, typhoid due to eating, 19 cases of, [Schenck] *1402
TWIN, circulation of blood of male in female in cattle leading to sterility, 1878—E
TYPHOID bacillus, myositis purulenta acuta caused by, [Terada] *2101
  bacteriologic antibodies in, [Zironi] (54) 1570
  butter medium of infection in, [Boyd] *2030
  carriers, convalescent, repeated autovaccination in, [Goubau] (29) 1203
  carriers, treatment of, [Preti] (48) 2212
  cause of persistence of bacilli in convalescents from, [Preti] (68) 1916
  diet in paratyphoid and, [Vincent & Muratet] 358—ab
  due to eating turkey salad, 19 cases of, [Schenck] *1402
  due to vegetables, possibility of, [Melick] (70) 150
  high calory diet in, 583
  high calory diet and course of, [Coleman] *329
  hygiene and prophylaxis of, among troops, [Capogrossi] (77) 157
  in Italian troops, special features of, [Durant] (107) 677
  in Surinam, [Bonne] (80) 949
  in vaccinated, [Minelli] (42) 596
  in war of 1898, [Keefer] 843—ab
  meningitis, acute, [Bonnamour & Macrygenis] (40) 1569
  meningitis, report of case, [Bayne-Jones] (14) 312
  osteoperiostitis, vaccine therapy for, [Weil & Chevrier] (54) 1303
  patient, giving egg and toast to, 1108—Ml
  treatment of, abortive, [Mauté] (27) 594
  urine test for, [Diacono] (42) 2211
  vaccination, 1642
  vaccination against paratyphoid and, among soldiers during war, results of, 1722
  vaccination against paratyphoid and, in Macedonian campaign, [Armand-Delille & others] 1731—ME
  vaccination against paratyphoid and, mixed, [Widal & Salimbeni] (59) 1386
  vaccination, bearing of, on diagnostic value of agglutination test in typhoid and paratyphoid, [Rist] (45) 1910
  vaccination from ophthalmologist's standpoint, [de Lapersonne] (30) 2152
  vaccine, intravenous injections, [Kibler & McBride] (68) 150, [Gay] (42) 1031
  vaccine supplied by Army Medical School, 1794
  vaccine therapy of, [Ranque & Senez] (56) 1742
  vaccine, triple, (bacillus typhosus, B. paratyphosus A, and B. paratyphosus B), results following inoculation with reference to reactions produced and antibody formation, [Craig] *1000
  with hyperpyrexia, [Drury] (31) 673
TYPHUS, agglutination in, [Baehr] (69) 150
  contacts, development of antibodies for bacillus typhi-exanthematici in, [Baehr] (59) 591
  endemic, prevention of, in California, [Cumming & Senftner] *98
  hygiene and prophylaxis of, among troops, [Capogrossi] (77) 157
  in guinea-pigs, [Gamalleya] (73) 857
  in Turkey, [Hoover] 964—ab
  present status of our knowledge of, [Aldershoff] (79) 598
  vaccination with coccus derived from human cases, experiment with, [Robertson] (20) 914
TYRAMIN as adjunct to morphin in labor, [Barbour] *882
TYRAMINE-ROCHE, 1875
TYROSIN, racemic, asymmetric cleavage of, by bacilli, [Tsudji] (89) 77

U

ULCER: See also under names of organs, i. e., Duodenum, ulcer of; Stomach, ulcer of
ULCER, leg, treatment of, [Cunier] (66) 1478
ULTRAVIOLET light, toxicity of, 1433—E
UMBILICAL CORD, prolapse of, [Nordlund] (93) 1390
  sutured, [Rendleman & Taussig] *1963
UNCINARIASIS and malaria, 746
  and soldier, [Stiles] 721—ab
  as medico-military consideration, [Foster & Sinclair] *131
  campaign against, problems in, 1611—E
  in Brazil, 395
  in Brazilian navy, [Porto-Carrero] (77) 1479
  in deep gold mines in California, 2116—E
  in mines of China, 1701—E
  larva of, 140
UNITED STATES and Canada, patent medicines in, 1636—P
  Army: See Army
  Dental School in Philadelphia, 1532
  Hospital units on British front, 301
UNIVERSITY of Michigan, degrees conferred on distinguished foreign medical officers, 1438
  of Pennsylvania hospital unit completed, 478
  of Texas freed from politics, 1086—E
  Progressive Club, University of Ohio, 2134
URACIL-CYTOSIN dinucleotide, [Jones & Read] (49) 314
UREA and quinin in hemorrhoids, [Terrell] *1509
  constant, Ambard's, in surgery, [Legueu & Chabantier] (51) 2074
  excretion, nephritis from standpoint of, [McLean] *437
  formation, function of muscular tissue in, [Hoagland & Mansfield] (87) 1198
  is urea formed in muscles, 1791—E
  production in tissues in course of necrosis and consecutive azoturia, [Ameuille] (20) 594
  ratio between urea content of urine and of blood after administration of, [Addis] (56) 491
  retention in nephritis, mechanism of [McLean] (51) 590
UREMIA, deceptive decrease in, [Castaigne] (52) 2074
  etiology, types and diagnosis, [Rowntree] (45) 940
  in cholera, [Valk & Langen] (95) 247
  in heart disease, significance of, [Josué & Parturier] (63) 157
  postcholeraic, mortality from, [Rogers] (15) 2210
  war nephritis with, but with no edema, [Eustachio] (63) 948
URETER, calculus, clinical diagnosis of lithiasis of upper urinary tract, [Young] *1490
  calculus, clinical study of, [Bugbee] *1492
  stumps, oblique anastomosis of, [Soresi] (63) 1037
URETHRA caruncles, fulguration in, [Ballenger & Elder] *1420
  fistula of rectum and, operative treatment, [Young & Stone] (57) 491
  lymphoid and cystic bodies in, as evidence of tuberculosis, [Pelouze] (63) 1111
  prolapse of female, [Keefe] *1935
URETHRITIS, posterior, [Pusey & others] *1171
URETHROTOMY, external, and seminal vesiculotomy, [Fuller] *276
URIC ACID: See Acid, Uric
URICACIDEMIA, sycosis from, [Vignolo-Lutati] (52) 596
URINARY TRACT, calculi, phosphatic, incidence of, in rats fed on experimental rations, [Osborne & others] *32
  lithiasis of upper, clinical diagnosis of, [Young] *1490
  retrograde catheterization in wounds involving, [Veber] (111) 679
  roentgenographic examinations of, [Caldwell] *1487
  suppuration in, of infants, [Gurgel] (86) 2006
  tuberculosis of, degeneration of leukocytes in urine in, [Wynne] (20) 670
URINE and blood ammonia in acidosis, [McNeil & Levy] (47) 1910
  arsenic in, 935
  biochemical investigations on blood and, bearing on clinical and experimental medicine, [Folin] *1209
  citric acid in, [Amberg & McClure] (6) 2116, 2120—E
  colloidal nitrogen in, Salkowski-Kojo test for, 1291
  degeneration of leukocytes in, as diagnostic aid in tuberculosis of urinary tract in women, [Wynne] (20) 670
  in picric acid workers, studies of, [West] (22) 755
  incontinence, essential, objective symptoms of, [Nogués] (15) 1381
  incontinence, nocturnal, [Mejia] (112) 499
  incontinence, pituitary extract in, [Mikhailoff] (104) 2077
  iodin reaction, [Thury] (59) 1206
  lactic acid in, Schneyer method for determining, [Maver] (45) 1649
  lead in, test for, 1556
  leukocyte counts on, in infections of kidney, [Kretschmer] *1505
  pentose in, determination of, [Testoni] (58) 75
  picric acid in, test for, 39—ab
  quinin elimination by, [Jeanselme & Dalimier] (41) 1204
  reaction in infants, [Flamini] (57) 1571
  reaction of, and diet in infants and children, [Torres] (4) 1825
  secretion, effect of dextrose intravenously on blood composition and, [Davis] (15) 238
  spirochetes in, in pyrexia of unknown origin, [Patterson] (4) 1566
  spirochetes in, occurrence of, [Stoddard] (3) 1566
  streptobacillus from, [Celler & Thalhimer] (36) 1030
  test for typhoid, [Diacono] (42) 2211
  urea in blood and, ratio between, after administration of urea, [Addis] (56) 491
UROLOGY, Foundation of, by James Buchanan Brady, 1549
UROTROPIN: See Hexamethylenamin
URTICARIA, local, experiments on, [Sollmann] (68) 942
  severe renal insufficiency associated with, in hypersensitive individuals, [Longcope & Rackemann] (62) 1111
URUGUAY physicians, visit of, 1370
UTAH medical news, 482, 925, 1187, 1632
  state board, January examination, 306
UTEROSCOPY versus transperitoneal hysterotomy, [Heineberg] (2) 669
UTERUS, cancer of, abdominal hysterectomy for, [Jayle] (36) 946
  cancer of cervix following suprapubic hysterectomy, [Vander Veer] (7) 1998
  cancer of cervix, recurrence after 5 years of, [Werder] 1466—ab, (8) 1998
  cancer, radiotherapy in, [Recasens] (32) 243
  cancer, radium in, [Bailey] 145—ab
  dilatation, acute, [Scott] 1377—ab, (6) 1998
  double, pregnancy and delivery in case of, [Moreno] (87) 247
  fibroid, roentgenotherapy successful in, without affecting ovaries, [Pfahler & McGlinn] (5) 669
UTERUS, hemorrhage, nonmalignant, radium in, [Miller & King] 2066—ab
  hemorrhage of benign origin, radium in, [Clark] 115—ab
  hemorrhage, radium in fibroid tumors and, [Miller] 114—ab
  infected, with contracted pelvis and living fetus, management of, [Gabastou] (55) 855
  inversion of, [de Lint] (147) 680
  myoma of, laparotomy for, immediate and remote results, [Lindquist] (77) 1306
  perforation of, [Cirio & Leiva] (91) 2076
  prolapse of, [Bonifield] 1294—ab, (3) 1998
  prolapse of, operative treatment of, [Jones] 1294—ab, (4) 1998
  prolapse of, treatment, [Rongy] *1862
  radium in hemorrhage, due to other causes than malignancy, [Kelly] 141—ab
  relation of ovary to breast and, [Loeb] 236—ab, (167) 1113
  removed at cesarean section, histologic study of 50, [Williams] (45) 1999
  retrodisplacements of, new method of operating for, [Sweetnam] (2) 943
  rupture of, [Martin] (10) 2003
  rupture of, during delivery, treatment of, [Mazzini] (95) 1658
  rupture of, following anterior hysterotomy, [Kahle] *2170
  should it be removed when pregnancy must be interrupted, [Marvel] 1467—ab

V

V. I. G. misbranded, 1375—P
VACCINATION: See also under names of disease, i. e., Typhoid, Vaccination in
VACCINATION, acupuncture method of, [Hill] 102—ab
  combined, with multiple vaccines, [Vastellani & Taylor] (5) 1473
  compulsory, of school children, construction of statute with reference to, 230—Ml
  free, for civilians, 127
  without power to compel, 1195—Ml
VACCINE and serum institute at Naples, 1550
  distribution of serums and, by state, [Shore] 2143—ab
  multiple (quadruple, quintuple & sextuple) and combined vaccination, [Vastellani & Taylor] (5) 1473
  prophylactic use of, in great war, [Wayson] *267
  standardization of serums and, [McCoy] *378
VACCINE THERAPY: See also under names of Diseases
VACCINE THERAPY, bacterial, [Leake] *631
  nonspecific character of, [Miller] *765
  nonspecific, intravenous, [Teague & McWilliams] (58) 150
  present status of, [Stone] (115) 851
  worthlessness of uncontrolled clinical reports, 648—E
VACUUM bottles for milk, [v. Bergen] (105) 676
VAGINA, adenomyoma of rectovaginal septum, [Cullen] (46) 1999
  fistulas of bladder and, inaccessible, operative treatment of, [Ward] (104) 593
VAGUS inhibition, effect of varying calcium and potassium content of perfusion fluids on, [Brine] (8) 1294
VAN SLYKE-M'LEAN method for determination of chlorids in blood, modification of, [Foster] (86) 1198
VARICELLA: See Chickenpox
VARICOCELE, operative treatment, [Lerda] (52) 244
VARIOLA: See Smallpox
VARNESIS, 582—P
VARNISHES, spray method of finishing and decorating as industrial hazard, 142
VASCULAR origin of nervous symptoms, [Queirolo] (56) 760
VEGETABLES, analyses of, showing effect of method of cooking, [Courtney & others] (3) 311
  danger of poisoning from, canned by cold-pack method, [Dickson] *966
  desiccation of fruits and, in home, 731—E

VEGETABLES, foods for diabetic, [Wardell] *1859
  green, salts in, and effect of different methods of cooking, [Bartlett] 233—ab
  oils production of, 2167—ab
  typhoid infection through, [Melick] (70) 150
VELD SORE, pathology and treatment of, [Martin] (16) 1301
VENA CAVA, inferior, laceration repaired by suture, [Cole] (31) 313
  inferior, probable phlebitis of, in parturient, [Mejia] (59) 597
VENARSEN, [Wilson] 62—C
VENEREAL DISEASES, 745, 907, [Pusey & others] *1004, *1080, *1168, *1259, *1347, [Sargent] 1290—C, [Castello & Hirzel] (70) 1305
  and new army, [Lyster] *1257
  British Commission on, report of, 306
  California's program, 1702
  campaign against, 1099, 1456
  civilian cooperation in combating, 916—E
  control of, 1088, 1898
  control of, in Michigan, recommendations for, 1181
  fourth, erosive and gangrenous balanitis, [Owen & Martin] (72) 1472
  in army, 734—E, [Gaudy] (28) 758, [Russell] 1537—ab
  in army as affected by soldiers' environment, [Snow] 1537—ab
  in army, control of, 1536—ab
  in camp, 1442
  in cantonments and camps, follow-up system for cure and control of, [Clark] *2182
  in Great Britain, problem of dealing with, [Goodwin] 1536—ab
  in Tasmania, control of, 839
  New York Evening Post starts campaign against, 387—E
  notification of, 1719
  Oregon and New York law against venereal advertising, 1021—P
  pamphlet on, prepared by Illinois Vigilance Association, 2121
  preventive tide of, [Braden] 1537—ab
  protection against, 1271
  systematization of methods to repress, [Gougerot] (53) 1655
  Washington State Medical Association campaign against, 1633
VENTILATION of shipholds after fumigation, 1603—ab
VENTRICULAR fibrillation in man with cardiac recovery, [Robinson & Bredeck] (34) 1999
VERMONT medical news, 394, 1454
  state board July examination, 935
VERRUCA, focused heliotherapy for, [Vallet] (44) 320
  lesions simulating verrucous tuberculosis, [Gougerot] (35) 2211
VERTIGO as symptom of primary disease of labyrinth, [Shambaugh] *805
  aural, in suppurative disease of middle ear, [Kerrison] *807
  Bárány tests in diagnosis of, [Jones] *812
  due to intracranial disease, [Weisenburg] *809
VESICOVAGINAL fistulae, substitution of anal for vesical sphincter in inoperable cases, [Peterson] (108) 1566
VINCENT'S ANGINA, treatment of, [Emrys-Roberts] (108) 1473
VIRGINIA medical news, 51, 482, 659, 837, 925, 1098, 1549, 2056
  state board June examination, 1464
VIRILISM forme fruste, [Marks] (68) 592
VISCEROPTOSIS: See Splanchnoptosis
VISION, dissociation of perceptions due to occipital injuries with reference to appreciation of movement, [Riddoch] (2) 756
  tests of acuity of, [Roelofs] (116) 2007
VITAMINS and bacteria, 1531—E
  and tumor growth, 1526—E
  deficiency and disease, 826—E
  hypothesis and deficiency diseases, [McCollum & Pitz] (62) 314, 2040—E
  pancreatic, in marasmus, [Eddy & Roper] (3) 1028
  rôle of, in diet, [Osborne & Mendel] (57) 314
VITILIGO with inherited syphilis, 2 cases, [Arullani] (52) 1118
VOICE impairment resulting from tonsillectomy, [Kenyon] *709
VOLATILE irritants in collapse, 1008—E
VOLVULUS, report of case, [Edwards] *997
VOMITING, pernicious, of pregnancy, blood transfusion in [Garnett] (12) 669
  uncontrollable, in soldiers, [Nordman & Goiffon] (55) 412
VULVA, cancer of, etiologic study of, [Taussig] 145—ab, (11) 1998
VULVOVAGINITIS, antigonococcus vaccine in, in children, [Condat] (26) 72

W

WA-HOO Bitters, Wilson's, 750—P
WAR: See also Army; Soldiers; Wounds
WAR and birth returns, [Chalmers] 610—ab
  and medical journals, 579
  cardiopathology of, [Ferrannini] (78) 247
  diet and metabolism, 1173—E
  economy, 915—E
  influence of, on medical science, [Ewing] *249
  medical history of, 1090, 1360
  protection of health of worker in, [Clark] *1124
  relief, standardizing, [Lane] 108-ab
  workers, health of, books on, 1375
WARING case, 1549
WART: See Verruca
WASHINGTON medical news, 51, 299, 659, 837, 1988
  state board January examination, 1291
  state board July examination, 2140
  State Medical Association, campaign against venereal disease by, 1633
WASSERMANN REACTION, causes of error in, [Telmon] (32) 946
  colloidal gold and other spinal fluid tests, comparative value of, [Hammes] (1) 2068
  diagnostic values of spinal fluid test and, in psychiatry, [Fell] (4) 753
  different antigens and different temperatures of incubation in, comparison of, [Smith & MacNeal] (26) 1030
  in 400 cases investigated by group study methods, [Knapp] (19) 1908
  in tuberculosis, [Corper & others] (29) 2147
  more delicate, depending on use of increased quantities of blood serum, [Bohan & Lynch] *1220
  new method of making antigens from normal heart tissue, [Neymann & Gager] (44) 1910
  preservation of complement for, [Rhamy] *973
  with glycerolated human serum more than year old, [Ruediger] (32) 1828
  with large amounts of patient's serum, [van Saun] (54) 1910
WASTE: See *also* Garbage
WATER and fasting cure, death from, 1645—Ml
  bath, electrically heated constant temperature water-bath for serological work, [Schultz] *1521
  boiling, injection of, in exophthalmic goiter, [Olivieri & Ronchi] (69) 949, [Ceballos & Bacigalupo] (90) 2076
  comparative resistance of paratyphoid B bacillus and colon bacillus in, [Daumézon] (23) 1301
  disinfection of drinking, [Dakin & Dunham] (11) 754
  distilled, acid-fast organisms in, problem of, [Keilty] (115) 1199
  drinking, making water safe for, 1291
  economy and heat loss in body, 386—E, 1701—E
  mineral, misbranded, 1901—P
  supply in camp, 1442
  supply, New York Catskill, 1530—E
  types of organisms isolated from, after treatment with calcium hypochlorite, [Smeeton] (40) 670
WEBER'S syndrome, with report of case, [Hassin] *2169
WEIGHT, physiologic drop in, in newborn, [Borrino] (60) 761
WEIL'S DISEASE: See Jaundice, Infectious
WEST VIRGINIA medical news, 300, 659, 1369
  state board July examination, 2064
WETNURSE management in institutions, technic of [Abt] *418
WHEAT, 732—E
  substitutes for, 838
WHEELER'S Tissue Phosphates, the lie with circumstance, 1010—E
WHEY, fermented, in dyspepsia, [Moruzzi] (30) 1568
WHITE Eagle Indian Rattlesnake Oil Liniment misbranded, 1192—P
  Stone Lithia Water misbranded, 1902—P
WHOOPING COUGH, enlargement of lingual tonsil in, [Ruckle] 2139—C
  immune serum in, [Bleyer] (12) 312
  vaccine, prophylactic use of, controlled by complement fixation test, [Huenekens] (4) 1562
  vaccine prophylaxis and treatment of, [Caronia & Pastors] (71) 322, [Goer] (120) 1381
WILLIAMS' Pink Pills, 1636—P
WILSON'S Preparation misbranded, 59—P
  Wa-Hoo Bitters, 750—P
WINES, medicated, Ontario License Board campaign against, 1719
  ration of soldiers, 1551
WISCONSIN medical news, 395, 660, 1018, 1187, 1369, 1632, 1810, 1988, 2133
  state board June examination, 1464
WITTER Springs Water misbranded, 1902—P
WOLFFIAN BODY, Recklinghausen tumor of, [Forsener] (83) 858
WOMEN, English medical women in war work, standing of, [Deal] 1555—C
  in laboratory work, opportunities for, 569—E, [Hastings] 933—C
  in medicine, 537
  on hospital staffs, appeal for, [Dubois] 1290—C
  periodic variations in life processes in, 384—E
  physicians organized, 572
  unit of, for France, 1438
  workers, training school for, 1811
WOOD, Casey A., on cantonment camp, 1013
WORKMEN'S Compensation Act, physicians and fees under, 938—Ml
  compensation, Ontario, 138
WORKS, ex-Senator, at Pacifist meeting in Chicago, 829—E
WORM Syrup, Low's 225—P
WOUNDED: See also Soldiers; War; Wounds
WOUNDED, advanced dressing station for, [Cheyron] (35) 73
  certainty of best possible attention for, program of preparedness of Army Medical Department, 915-E
  gathering in the wounded, [Morin] (36) 73
WOUNDS: See also under names of organs and regions
WOUNDS, anaerobes found in, and mode of action in tissues, [Henry] (10) 242
  autogenous vaccines in, [Dematheis] (87) 1658
  bacteriologic asepsis of, [Vincent] (63) 239
  blood *transfusion immediately after* war wounds, hematologic indications for, 1990
  brilliant green paste in, [Short & others] (2) 1830
  capillary drainage for extensive, [Canestro] (64) 2005
  Carrel-Dakin solution in, simplified method for preparation of, [Rosengarten] *1075
  Carrel-Dakin treatment of, [Bevan] 1727—C, [Welch, Dakin] 1994—C, [Bloodgood, McCormack] 2061—C
  Carrel-Dakin treatment of, report of special committee appointed by director general of British Army Medical Services, 1881
  Carrel method of treating, [Gibson] (23) 1109
  castor oil as lubricant for dressings and, [Revillet] (35) 1302
  chloramin-T paste for sterilization of, [Daufresne] (64) 239
  chloramin-T sterilization of, [Carrel & Hartmann] (65) 239
  closure of war wounds in home hospitals, [Phillips] (5) 1642
  contracture or paralysis after, pathogenesis of, [Salmon] (77) 2075
  Dakin solution in, [Bashford] (14) 1831
  dichloramin-T in wounds of war, [Sweet] *1076
  diphtheria among returned soldiers, report of outbreak of, [Fitzgerald & Robertson] *791
WOUNDS, diphtheria complicated by rheumatic fever, [Bicak] *38
  disinfection by electrolysis of circulating therapeutic fluid under continuous aspiration, [Chick & Miniot] (54) 244
  first dressing of, [Vincent] (33) 2153
  flavine in recently inflicted, [Drummond & McNee] (17) 1913
  foreign bodies in, prompt removal of, [Speed] *1079
  gunshot, medicomilitary considerations of modern military bullet, [Acker] *1427
  gunshot, method of early closure of, [Harmer & Marshall] (7) 1740
  gunshot, treatment, [Moynihan] 1538—ab
  hot air douches in, [Bandaline & de Poliakoff] (46) 1915
  in hemophiliac, course of, [Fiessinger & Montaz] (47) 1654
  infected, abortive treatment by Carrel's method and Dakin's solution, [Sherman] *185
  infected, heliotherapy in, 53
  infected, iodized starch in, 1457
  infected, treatment of, 286—E, [Morison] (1) 1830
  infection among lathe workers, [Shie] *1927
  irrigation and suction drainage in, [Sneyd] (18) 1033
  Javel water in, 2057
  laws on industrial accidents and, [Imbert] (66) 2075
  liquid petrolatum in, [Gray] (3) 1830
  liquid tight closure in, [Taylor & Taylor] (13) 1567
  methods of applying antiseptics to deeper parts of, [Kellock] (18) 1202
  muscular movements and contractures after, unintentional, [Ricca] (73) 2005
  normal (beef) serum in, [Shortell & others] (16) 1827
  normal blood serum in treatment of, [Leary] (12) 1826
  of soft parts, treatment of, 1812
  paraffin film treatment of frostbite and, [Masnata & Matronal] (46) 596
  physician not bound to follow patient and be liable for care of, 1846—Ml
  proflavine in recently inflicted, [Colledge & others] (15) 2003
  radiotherapy for, in war, [Réchou] (45) 1035
  roentgen examination after war wounds, utility of, [Masserini] (59) 75
  sugared petrolatum for dressing, in war, [d'Emidio] (68) 322
  sunlight in treatment of, [Frèche] (41) 1654
  treatment, [Wright] 308
  treatment by introduction of living cultures of spore-bearing anaerobe of proteolytic group, [Donaldson & Joyce] (12) 1567
  treatment, comparison of methods, [Taylor] *381
WRIST, injured, insufficient evidence of malpractice in treatment. of, 1732—Ml
WYOMING medical news, 1284

X

X-RAYS: See Roentgen Ray
XERODERMA pigmentosum, carbon dioxid snow in, [Lomholt] (115) 2078
XEROPHTHALMIA and alimentary gastro-enteritis in infants, [Monrad] (110) 1122
  and carbohydrate dyspepsia, [Rønne] (93) 1918

Y

YEAST, 826—E
  bakers', in diseases of skin and of *gastro-intestinal* tract, [Hawk & others] *1243
  yeast-like fungi of human intestinal tract, [Anderson] (48) 1380
YELLOW FEVER, danger of malaria and, getting foothold in France, [Blanchard] (35) 244

Z

ZIRATOL, refused recognition by Council, 1191—P

AUTHOR INDEX

In this Index are the names of the authors of articles which have appeared in The Journal, the names of those who have read papers before Societies as published in The Journal and those whose articles have been abstracted in the Current Medical Literature Department. The * preceding the page reference indicates that the article appeared in full in The Journal. The number in parentheses indicates the numbered paragraph on the page referred to. The numbers not in parentheses indicate pages. The author's name is followed by a brief clue to the subject of the article in brackets.

A

Aaron, C. D., [Gastro-enteroptosis] (51) 68
Abbott, A. C., [Camp Greenleaf] 1791
Abel, J. J., [Albumoses in tissues and blood] (6) 1735
Abell, I., [Precancerous lesions] 2067
Abrahamsen, H., [Crutches] (90) 1574
Abrahamson, I., [Pituitary disease] *281
Abt, I. A., [Congenital skin defects] 233, (5) 588, [Appendicitis] 235, (8) 1562, [Pneumothorax] 235, [Wetnurse] *418
Acconci, G., [Alien tumor grafts] (98) 498
Acker, R. B., [Modern bullets] *1427 [Barbarities in Mexico] 1818
Acuña, M., [Exclusive carbohydrate feeding] (76) 1917
Adams, H. S., [Oxytocic principles of pituitary] (46) 149
Addis, T., [Diabetes] *109, [Urea in urine and blood] (56) 491
Agasse-Lafont, E., [Stomach in gassed] (23) 2211
Agduhr, E., [Development of nervous system] (86) 1917
Aievoli, E., [Cinematic surgery] (73) 1916
Aikman, J., [Ileocolitis] (26) 849
Aimé, H., [Emetin and arsenic in dysentery] (34) 1116
Alamartine, H., [Wounds of vessels] (44) 1654
Albanese, A., [Proteolytic ferments for foreign proteins] (99) 498
Albeck, V., [Status epilepticus] (94) 1040
Albert-Weil, E., [Roentgenotherapy] (35) 318, [Peritonitis] (37) 2003
Albina, E., [Thyroid insufficiency] (84) 1120
Aldershoff, H., [Typhus] (79) 598
Alderson, H. E., [Hodgkin's disease] (41) 1564
Alessandri, R., [Filiform drainage in mastitis] (61) 761
Alexander, J. B., [Wounds of chest] (36) 1384
Alfaro, G. A., [Medical tuberculosis] (87) 158, [Prognosis in tuberculosis] (82) 414, [Poliomyelitis] (86) 1388
Alglave, P., [Repair of skin] (35) 946
Allaria, G. B., [Infant mortality] (56) 1571
Allbutt, T. C., [Heart diseases in soldiers] (16) 853
Allen, E. M., [Pregnancy and tabes] *979
Allen, H. R., [Fractures] *1143
Allende, C. I., [Echinococcus cyst of liver] (83) 1120
d'Allonnes, G. R., [Achilles tendon sign of sciatica] (81) 496
Allport, F., [Corneal tattooing] 1641
Alquier, L., [Electric light and heat plus massage] (37) 1303
Alquier, P., [Resection of hip] (34) 1914
Alsever, W. D., [Drugs and heart disease] (116) 1381
Alvarez, W. C., [Effect of temperature on rhythm of excised intestine] (7) 1735, [Reverse peristalsis] *2018, [Purged intestine] (29) 2069
Amber, S., [Influence of oxygen on inflammatory reactions] (84) 1298
Amberg, S., [Citric acid in urine] (6) 2146
Amblard, L. A., [Heart functional capacity] (38) 1303, [Blood pressure and aortic insufficiency] (61) 1386
[illegible], T. H., [War Shock] 2145
[illegible], P., [Urea in necrotic tis- [illegible] (20) 594
Amoss, H. L., [Neutralization of virus of poliomyelitis] (174) 1113, [Antimeningococcic serum] *1137, [Carriage of virus of poliomyelitis] (40) 1909
Anderson, A. G., [Subtertian cerebral malaria] (21) 1567, [Tartar emetic in malaria] (14) 2210
Anderson, H. W., [Fungi of intestinal tract] (48) 1380
Anderson, J., [Wounds of chest] (2) 2002
Anderson, R. R., [Syncytioma malignum] (121) 1298
Andrews, E. W., [Absorbable metal clips] *278
Andruetto, [Toxic meningism] (50) 947
Aquino, P. B., [Hiccup] (104) 159
Aragão, H. de B., [Spirochete in rats] (85) 2006
Arana, G. B., [Colectomy for megacolon] (64) 856, [Graft of epiphysis] (89) 2076
Arce, J., [Icterohemorrhagic spirochetosis] (74) 2157
Archambault, L., [Infectious processes of ciliary ganglion] (46) 1564
Archibald, E., [Intestinal tuberculosis] (6) 1826
Arey, L. B., [Red blood cells] (4) 2146
Aristovsky, V. M., [Tetanus toxin] (88) 1479
Arkle, J. S., [Brilliant green paste] (2) 1830
Arlitt, A. H., [Alcohol and reproductive tissues] (54) 2149
Armand-Delille, P., [Vaccination against typhoid] 1731
Armstrong, D. B., [Tuberculosis demonstration] *1051
Arnaud, L., [Wounds of lungs] (25) 317
Arnell, P., [Cholesterol in pleural effusion] (81) 1573
Arullani, P. F., [Vitiligo with syphilis] (52) 1118
Ascarelli, A., [Factitious affections] (79) 157, (68, 69) 246
Aschner, P. W., [Pneumococci and streptococci] (52) 1380
Ashe, H. P., [Larrey] 1375
Ashford, B. K., [Sprue] (9) 754
Askgaard, V., [Syringomyelia] (116) 1660
Aub, J. C., [Goiter] *33
Aubertin, C., [Heart disease] (46) 1204, [Test bradycardia] (44) 2004
Aubourg, [Radioscopy and radiology] (47) 1035
Audain, G., [Sugar in septicemia] (51) 2154
Auer, E. M., [Nervous conditions in war] (81) 1650
Augé, A., [Amebic suppuration in liver] (59) 1037
Auld, A. G., [Phenolsulphonephthalein test] (2) 1566
Auvray, [Projectiles in pelvis] (97) 676
Avery, O. T., [Elaboration of specific soluble substance] (39) 1379
Aviragnet, E. G., [Diphtheria and pseudodiphtheria bacilli] (57) 1742
Ayer, W. D., [Poliomyelitis] (118) 851

B

Babcock, R. H., [Heart in goiter] 1907
Babcock, W. W., ["Soup bone" implant] *352
Babinski, J., [Nervous disturbance in wounded] (96) 676
Baccarani, U., [Atypical convalescence] (55) 74
Bacigalupo, G., [Boiling water in goiter] (90) 2076
Bader, E. R., [P[illegible]] *450
Baehr, G., [Typhus] (69) 150, (59) 591
Baggio, G., [Wounds predisposing to gangrene] (76) 157
Baglioni, S., [Soldiers' ration] (48) 1569
Bahn, C. A., [Moving pictures and eyes] (107) 1381
Bailey, H. C., [Radium in cancer] 145, [Sex glands and metabolism] 237, (171) 1113
Bailey, P., [Disabled returned soldiers] (76) 1650
Balliart, P., [Intra-ocular arterial pressure] (70) 674
Bainbridge, F. A., [Blood in surgical shock] (55) 494
Bainbridge, W. S., [Pregnancy and cancer] 1466
Bais, W. J., [Reinfection with syphilis] (102) 2158
Baker, H. M., [Diarrhea] (74) 1297
Baker, R. V., [Medical students and the draft] 228
Baker, S. L., [Cerebrospinal fever] (18) 1831
Baker, W. F., [Ipecac alkaloids] (28) 2069
Balard, P., [Oscillometric index] (47) 760
Balfour, D. C., [Gastric hemorrhage] *465, [Restoration of gastro-intestinal continuity] (107) 1829
Ballenger, E. G., [Fulguration in urethral caruncles] *1420, [Drainage tube] *2104
Bancroft, F. W., [Surgical service] *1599
Bandaline, J., [Hot air douches in wounds] (46) 1915
Banks, C., [Emetin in dysentery] (57) 674
Banzhaf, E. J., [Complement fixation] (34) 1828
Bar, P., [Notification of abortions] (46) 1742
Barach, J. H., [Diabetes insipidus] (15) 754
Barbosa, P., [Tuberculosis] (76) 1479
Barbour, H. G., [Tyramin and morphin] *882
Bard, L., [Dilatation of rectum] (28) 1568
Bardeen, C. R., [Anatomy of heart] (145) 153
Barile, C., [Exact coaptation of nerve fibers] (85) 1744
Barker, B. I., [Metabolism in cardiac disease] (36) 1196
Barker, L. F., [Pernicious anemia] *1919, [Diabetes] (31) 2070
Barkley, A. H., [Precancerous state] 2067
Barlaro, P. M., [Pulmonary tuberculosis] (96) 159, [Syphilitic rheumatism] (85) 1388
Barling, H. G., [Wounded knee] (9) 1201
Barnes, F. M., Jr., [Bladder in psychoses] (76) 942
Barnett, E. L., [Congenital clubfoot] *1057
Barraquer, I., [Cataract extraction] (102) 2006
Barraquer, J. A., [Cataract extraction] (102) 2006
Barré, A., [Pupil reactions after shell shock] (41) 1384
Barret, [Radioscopy and radiology] (47) 1035
Barrie, G., [Bone lesions] *1227
Barringer, B. S., [Radium in cancer of bladder] (18) 1378
Barringer, T. B., Jr., [Disordered action of heart] 1726
Barthélemy, E., [Examining feces for parasitism] (39) 1654
Bartlett, C. J., [Phagocytosis in vivo] (112) 1199
Bartlett, F. H., [Salts in green vegetables] 238, [Analyses of vegetables] (3) 311
Bartlett, W., [Movable kidney] *625, [Substitute for breast] (18) 847
Baruch, D., [Anesthesia for wounded] (35) 2153
Baruch, S., [Trench sanitation] *1694
Bashford, E. F., [Dakin's solution] (14) 1831
Bass, S., [Delinquents] 2143
Bastedo, W. A., [Pulmonary edema] *301
Bastian, J. W., [Pneumonia] 1733
Bateman, W. G., [Raw eggs] (7) 67
Baudet, [First aid after amputations] (32) 2152
Baumann, L., [Origin of creatin] (92) 1198
Bauvallet, H., [Receiving cap for telephone] (40) 1035
Bayliss, W. H., [Shock] (40) 1741
Bayne-Jones, S., [Typhoid meningitis] (14) 312
Beard, S. D., [Antisheep hemolytic amboceptor] (51) 1380
Beck, H. G., [Infection and thyroid] 2207
Beck, J. C., [Goiter] 1907
Beckman, E. H., [Postoperative obstruction] (53) 940
Béclère, [Roentgenotherapy] (33) 318
Bedson, S. P., [Infective jaundice] (3) 1473
Beebe, J., [Medical supervision of schools] 1733
Beekman, F., [Acute appendicitis] (3) 1469
Beeler, C., [Infection in pyelocystitis] 147, [Focal lesions due to colon bacilli] (1) 311, [Pyelitis] *898
Beggs, W. N., [Induced pneumothorax] (26) 2147
Belli, C. M., [Navy ration] (49) 1569
Bello, E., [Sarcoma of fallopian tube] (82) 247
Belloir, F., [Tests with bradycardia] (49) 1036
Bellon, R. E., [Diphtheroid organisms and streptococci] (50) 671
Bellot, V., [Bullet in cauda equina] (21) 317
Belot, J., [Disturbance in gait with paralysis] (43) 320
Benard, R., [Diphtheria carriers] (48) 244
Bender, A. J., [Cholecystectomy vs. cholecystostomy] 1468
Bengis, R., [Renal changes and oils] (69) 240
Bengolea, A. J., [Gastric cancer] (87) 414
Bensaude, R., [X-ray diagnosis of cancer of intestine] (39) 155, [X-ray diagnosis of intestinal stenosis] (36) 318
Bérard, L., [Bone grafts] (51) 241, [Knee wounds] (54) 321, [Fistulas in thorax] (43) 1915
Bergeim, O., [Bakers' yeast] *1243, [Determination of calcium] (83, 84) 2000
v. Bergen, [Vacuum bottle for milk] (105) 676
Berghausen, O., [Intraspinal therapy] 1907
Berkart, J. B., [Perils of uric acid] (2) 1033
Bernasconi, E., [Fastening intubation tube] (42) 1117
Bernheim, B. M., [Transfusion] *359
Bernoulli, E., [Dosage of bromids] (67) 1037
Bernstein, E. J., [Chalazion] *532
Bertarelli, E., [Tuberculin treatment] (79) 1657
Berthélemy, [Abortions] (35) 1568
Bertrand, I., [Localization of brain centers] (84) 674
Bertrand, Y., [Fat granulations on ovary] (43) 1303
Beruti, J. A., [Puerperal septicemia] (53) 855
Besley, F. A., [Noncatheterization] *638
Beuzard, [Suprarenal dyspepsia] (40) 947, (35) 1653

Bevan, A. D., [Surgical problems] *161, 1727
Beyhan, P. J., [Drafting premedical students] 1103
Bicak, J. F., [Wound diphtheria] 38
Biggs, H. M., [War tuberculosis] (6) 405
Bilancioni, G., [Simulated deafness] (71) 246, [Papilloma of maxillary sinus] (67) 2005
llings, F., [Address] 1440, [Russian Red Cross mission] *1687
Binet, L., [Functional joint disability] (37) 759
Binger, C., [Toxicity of phosphates] (65) 942
Binswanger, L., [Shell shock psychoses] (76) 2075
Birdsall, J. C., [Kidney tests] *1747
Bissell, W. W., [Pulmonary fat embolism] (112) 241
Bizarro, A. H., [Temporary "pilons"] (25) 410
Bjørum, M. V., [Dietaries and income] (102, 103) 248
Blachly, C. D., [Recording data on X-ray plates] *999
Black, A. D., [Mouth infections] 599
Black, J. H., [Colloidal gold test] *1855
Blackburne, G., [Osteomyelitis] *2106
Blackfan, K. D., [Hydrocephalus] (2) 2208
Blackford, J. M., [Alpha iodin in heart block] (13) 1469, [Cardiac disease] *2011
Blacklock, B., [Treatment of malaria] (7, 8) 672, (2-4) 1299, [Microfilaria nocturna] (1) 1299
Blair, A. McN., [Mediastinal conditions] (17) 754
Blake, F. G., [Pneumococcus types] (61) 239, [Antiblastic immunity] (43) 1379
Blanchard, R., [Malaria and yellow fever in France] (35) 244
Blanchard, W., [Osteochondritis juvenilis] *1060
Blech, G. M., [Red Cross base hospitals] 1103
Blechmann, G., [Hot cabinet] (42) 759
Bleyer, A., [Whooping cough] (12) 312
Blind, A., [Cardiac cough] (41) 244
Bloch, B., [Metabolism and immunity in dermatology] (48) 1118, [Eczema] (61) 1743
Block, E. B., [Oral sepsis] 2207
Block, F. B., [Nephropexy] (35) 1736, [Leukorrhea] *2025
Bloodgood, J. C., [Carrel-Dakin treatment] 2061
Bloom, C. J., [Bone development] (27) 849
Bloomfield, A., [Serotherapy in pneumonia] (18) 1648
Bloor, W. R., [Blood lipoids in anemia] (54) 314, [Blood lipoids in diabetes] *375, [Blood lipoids in nephritis] (95) 1198
Blue, R., [Address] 1439
Blumenau, N. R., [Burns] (83) 76, [Pretuberculosis] (102) 1121, [Milk powder] (103) 2077
Blumer, G. A., [Qualifications for medical officers] 306
de Boer, S., [Innervation of leg of cat] (100) 1480
Bogert, L. J., [Uric acid in blood] (44) 1649
Bohan, P. T., [Wassermann reaction] *1220
Boix, E., [Herpes zoster] (70) 2156
Boldireff, V. N., [Poisoning from gases] (111) 2007
Bolling, G. E., [Bacteriology of foods] 60
Bolten, G. C., [Tetany] (89) 1389, [Absence of skin reflexes] (85) 1917
Bompiani, G., [Spirochete jaundice] (53) 948
Bond, E. D., [Brain tumor] (35) 1828
Bonifield, C. L., [Prolapse of uterus] 1294, (3) 1998
Bonine, E., [Renal tuberculosis] (1) 1469
Bonnamour, S., [Typhoid meningitis] (40) 1569
Bonne, C., [Venereal granuloma] (4) 71, [Typhoid] (80) 949
Bonnetta, [Soldier's heart] (43) 2212
Boorstein, S. W., [Poliomyelitis] *696
Boothby, W. M., [Thyroid medication] (32) 2070
Bordier, H., [Radiotherapy for wounds of nerves] (47) 1204
Borries, G. V. T., [Sterile lumbar puncture fluid with meningitis] (98) 764, [Mastoid operations] (53) 2212
Borrino, A., [Reduction in weight of newly born] (60) 761
Borzone, R., [Balantidium coli] (82) 1479
Bosredon, L., [Identification of dead] (26) 2211
Boudreau, L., [Iodin in tuberculosis] (49) 412
Boughton, T. H., [Protein intoxication] (77) 1297
Bourdier, [Wounds of eyeball] (67) 413
Boven, W., [Dementia praecox] (54) 74
Bowen, B. D., [Thyroid medication] (32) 2070
Bowlby, A., [British surgery at front] (1) 153
Boyd, G. M., [Cesarean section in placenta praevia] (3) 237
Boyd, M. F., [Butter infection in typhoid] *2030
Boyle, H. E. G., [Nitrous oxid and oxygen] (11) 2003
Braasch, W. F., [Bladder tumors] 1823
Bracci, C., [School anemia] (58) 1571
Brachet, A., [Anomalies of body] (30) 73
Brackett, E. G., [Ununited fracture of femur] (38) 1197
Bradburn, M., [Carbuncle of upper lip] (104) 1381
Braden, G. W., [Social disease] 1537
Bradford, J. R., [Injuries of chest] (17) 853
Bradley, P., [Pernicious anemia] (9) 594
Braisted, W. C., [Address] 1439, [Navy surgeon] 1538
Branchu, H., [Prostheses among ancients] (86) 675
Brandt, K., [Postpartum hemorrhages] (85) 1573
*Bray, H. A., [Breath sounds] *1762*
Bredeck, J. F., [Ventricular fibrillation] (34) 1999
Breuer, C. H., [Dressing for cholecystotomy] *1420
Briant, M., [Stuttering and shell shock] (35) 1116
Brickner, W. M., [Subdeltoid bursitis] *1237
Brindeau, A., [Salpingo-ovaritis] (31) 243, [Postoperative fatalities] (34) 758
Brine, B. M., [Calcium and vagus inhibition] (8) 1294
Briscoe, G., [Blood in irritable heart] (17) 154, (4) 1033
Bristol, L. D., [Scarlet fever] 2139
Brocq, P., [Amebic suppuration in liver] (59) 1037
Bronfenbrenner, J., [Besredka's antigen] (51) 1910
Brooks, B., [Growth of bone] (72) 70
Brossy, J., [Operation for hernia] (62) 1206
Brown, A. G., [Oral sepsis] 2207
Brown, C. H., [Liquid agar-agar] *467, [Bronchial asthma] (108) 671
Browne, J. P., [Vesical calculus] *1686
Browning, C. C., [Sodium succinate] *31
Browning, C. H., [Acriflavine, proflavine and brilliant green] (20) 673
Bruce, D., [Tetanus] (31) 410, (15) 1383
Bruhl, I., [Tin in furunculosis] (32) 1653
Brunetti, F., [Ear during war] (79) 1743
Bucholz, C. H., [Lame shoulder] *968
Buerger, L., [Thrombo-angeitis obliterans] (9) 1029
Buettner, J. J., [Vapor anesthesia] 1734
Bugbee, H. G., [Lithiasis] *1492
Bull, C. G., [Bacillus welchii] (66) 239, [Antitoxin for bacillus welchii] (45) 1379
Bull, E. C., [Tuberculosis of knee] *1162
Bullen, H. B., [Blood in surgical shock] (55) 494
Bullock, F. D., [Induced cancer immunity] (19) 1827, [Splenectomy and tumor immunity] (20) 1827
Bunts, F. E., [Fractures of skull] (54) 68
Burge, E. L., [Catalose content of liver] (9) 589
Burge, E. L., [Catalase content of liver] (9) 589, [Ether anesthesia] (3) 1735
Burger, H., [Foreign bodies in brain] (36) 2153
Burget, G. E., [Thyroid medication] (9) 2146
Burket, W. C., [Diversion of splenic blood] (60) 2149
Burnam, C. F., [Radium] *989
Burns, N. B., [Tuberculous sputum] (9) 1826
Burr, C. B., [Patriotism rampant] 751, 842
Burridge, W., [Actions of anesthetics] (20) 72, [Perfused heart] (21, 22) 72
Bushnell, G. E., [Tuberculosis in military service] (10) 939
Busquet, H., [Intravenous injection of colloids] (31) 318, [Tachyphylaxis] (38) 2211

C

Caldwell, E. W., [Roentgenographic examinations] *1487
Caldwell, G. A., [Acidosis and anesthesia] (113) 241
Caldwell, J. A., [Paraffin spray apparatus] *383
Caliceti, P., [Adenoids and pituitary insufficiency] (66) 246
Calmette, A., [Antirat campaign] (55) 1476
Cameron, H. C., [Status lymphaticus] (1) 242
Camescasse, J., [Measles] (25) 72
Cammidge, P. J., [Dietetic treatment of diabetes] (3) 1652
Campani, A., [Mask for stethoscope] (78) 323
Campbell, J., [Wounds of knee joint] (17) 1033
Campora, G., [Lumbar hernia] (60) 245
Camus, J., [Neurology of peace and war] (88) 675
Canestro, C., [Capillary drainage for wounds] (64) 2005
Cannata, S., [Sugar in blood at birth] (52) 1570
Canovas, B. N., [Diathermy for gonococcus orchitis] (131) 678
Cantelli, O., [Oculocardiac reflex] (67) 75
Capitan, [Erysipelas] (36) 244
Capogrossi, A., [Prophylaxis of camp epidemics] (77) 157, [Meningitis] (64) 2156
Cappelli, L., [Phototherapy and radiotherapy] (77) 1387
Carle, [Gonorrhea] (37) 759
Carles, J., [Traumatism and tuberculosis] (38) 854, [Examining for parasitism] (39) 1654
Carles, P., [Fate of mercury in the system] (51) 412
Carlevaro, J. C., [Instrumental delivery in pneumonia] (73) 2156
Carlson, A. J., [Pancreas and sex life] 236, (165) 1113, [Hunger and appetite in fever] (13) 1294
Carnot, P., [Subnormal temperature] (42) 74, [Malaria] (45) 854
Caro, H., [Intestinal adhesions] (31) 849
Caronia, G., [Vaccine treatment of pertussis] (71) 322
Carpi, U., [Spirochete jaundice] (53) 948
Carrel, A., [Chloramin-T] (65) 239
Carruth, F. E., [Iron as antidote to cottonseed meal injury] (89) 2000
Carstens, J. H., [Gallbladder trouble] 1466
Carter, H. F., [Carriers of entameba histolytica] (6) 672, [Quinin alkaloid in malaria] (4) 1299
Cartin, H. J., [Intubation] *460
Caruccio, M., [Factitious affections] (79) 157
Case, J. T., [Colon and rectum] (1) 847
Cashman, B. Z., [Pulse pressure test] (2) 1469
Casler, D. B., [Tetanus] 2143
Castaigne, J., [Uremia] (52) 2074
Castañeda, H., [Cholesterol] (76) 1119
Castañeda, M., [Traumatic nephritis] (84) 158, [Sarcoma] (82) 247
Castano, C. A., [Radium therapy] (54) 855
Castellani, A., [Bronchial spirochetosis] (55) 1036
Castello, V. P., [Venereal diseases] (70) 1395
Castex, M. E., [Pulmonary syphilis] (88) 158
Casto, T. D., [Nitrous oxid-oxygen anesthesia] [illegible]
Caulk, J. R., [Bladder in psychoses] (76) 942
Caussade, L., [Murmurs with aortic incompetency] (41) 1303
Cavina, G., [Frost-bite] (62) 75
Ceballos, A., [Ileosigmoidostomy] (94) 1744, [Boiling water in thyroid] (90) 2070
Cecicas, J., [Nodose erythema] (75) 598, [masked dysentery] (108) 1659
Cecil, R. L., [Excretion of dyes] *521
Celler, H. L., [Streptobacillus from urine] (36) 1030
Cetrangolo, A., [Pain with laryngitis] (122) 499, [Oxygen in neuralgia] (65) 856
Chabanier, H., [Urea constant in surgery] (51) 2074
Chace, A. F., [Nephritis] (3) 67, *440
Chadwick, H. D., [Diagnosis of tuberculosis] (36) 590
Chalier, A., [Operation at advanced station] (48) 320, [Gas gangrene] (99) 676, [Contusion of knee] (52) 1205
Chalmers, H., [Birth returns and war] 610
Chamberlin, W. B., [Endonasal operation] *17
Chapin, C. V., [Public health values] *90
Chapin, H. D., [Pure raw milk] *886
Chapple, W. A., [Reamputation] (2) 1114
Chaput, H., [Slip noose suture] (31) 946, [Walling off pelvis] (20) 1301, [Pleurisy] (29) 1653
Charbonnel, [Projectiles in thorax] (37) 854
Charrier, [Traumatism and tuberculosis] (38) 854
Chatterjee, G. C., [Trichomastix] (24) 2072
Cheret, A., [Antitetanus serum] (28) 945
Cherry, T. H., [Cesarean section] (5) 1647
Chevallier, P., [Treatment of syphilis] (44) 1915
Cheville, J., [Posterior adenoiditis] (43) 2154
Chevrel, F., [Butyric dyspepsia] (41) 947
Chevrier, L., [Wounded leg] (79) 496, [Typhoid osteoperiostitis] (45) 1303
Cheyron, [Advanced dressing station] (35) 73
Chiaravalloti, L., [Color reaction in cerebrospinal fluid] (81) 1743
Chiasserini, A., [Frost-bite] (62) 75, [Skull wounds] (74) 246, [Abdominal wounds] (65) 1916
Chick, G., [Electrolysis and wounds] (54) 244
Chittenden, R. H., [Pellagra-like condition in dogs] (7) 589
Chomé, E., [Influenza and obstetrics] (34) 243
Christian, H. A., [Erythema] *325, [Polycythemia vera] (9) 1469 [Heart block in pericarditis] (91) 2150
Christie, C. D., [Diabetes insipidus] (11) 406, [Acidosis in diabetes] (50) 407
Christopherson, J. B., [Espundia] (11) 1831
Chueco, A., [Vaginal route for operations on tubes] (74) 762
Chun, J. W. H., [Leukocyte count in beriberi] (19) 2003
Cifuentes, P., [Iodin fumes in cystitis] (129) 678
Cignozzi, O., [Gangrene of gallbladder] (73) 246
Cirincione, G., [Ophthalmologic service in army] (72) 322
Cirio, C. R., [Perforation of uterus] (91) 2076
Cisneros, E., [Electrocauterization of cancer] (73) 949
Citelli, S., [Adenoids and pituitary insufficiency] (66) 246
Civalleri, I., [Infectious jaundice] (70) 1119
Clara, [Dermatitis] (66) 674
Clark, A. H., [Surviving heart and pancreas] (39) 1909
Clark, G. H., [Treatment of scabies] (6) 757
Clark, H. C., [Arthritis] *2099
Clark, J. B., [Sexual infections] *2182
Clark, J. G., [Radium in uterine hemorrhage] 145, [Pelvic lesions] (114) 241, [Nephropexy] (35) 1736
Clark, J. T., [Address] 1439
Clark, W. I., Jr., [Health in war] *1124

al diseases]

capacity of
225

AUTHOR INDEX

Lynch, J. M., [Cancer of rectum] *1775
Lynch, L. A., [Wassermann reaction] *1220
Lyon, E. P., [Graduate education] *1307
Lyon, M. W., Jr., [Cystitis] *1342
Lyster, W., [Venereal disease] *1257

M

McBratney, E. W. [Disgracing the profession] 664
McBride, L. F., [Typhoid vaccine] (68) 150
McBride, R. B., [Colloidal gold test] *1855
MacCallum, W. G., [Oxyhemoglobin] *523
McCartney, E., [Agaricin] (87) 315
McCaskey, G. W., [Myelitis] *1960
McClanahan, H. M., [Indicanuria] 311
McClanahan, Z. H., [Acute cholecystitis] 1468
McClure, C. W., [Uric acid in gout] (39) 1737, [Vital capacity] *1951, [Renal function in gout] (30) 1999
McClure, W. B., [Influence of oxygen on inflammatory reactions] (84) 1298, [Borderline tonsils] 2144, [Citric acid in urine] (6) 2146
McCollum, E. V., ["Vitamin" hypothesis] (62) 314, [Pellagra] (43) 1649, [Pellagra producing diets] (85) 2000
McCord, C. P., [Pineal gland] 235, (161) 1113
McCormack, A. T., [Carrel-Dakin treatment] 2062
McCoy, G. W., [Serums and vaccines] *378, [Pellagra] 1463
McCrae, J., [In Flanders' Fields] 1177, [The Anxious Dead] 1437
McCreery, A. H., [Diabetes] (22) 149
McCulloch, C. C., [Sanitation in trenches] *81, *183, [Field sanitary orders] *1345
McCurdy, J. R., [Nitrous oxid-oxygen anesthesia] 1647
McCurdy, S. M., [Industrial dispensary] *1318
McDermott, F. A., [Patriotism rampant] 933
McFarland, W. L., [Pigmentation of hind-gut] *1946
Macfie, J. W. S., [Malaria] (1, 7, 8) 672, (2-4) 1299
McGlinn, J. A., [Roentgenotherapy of fibroid] (5) 669
Macgowan, J. J., [Food requirements] 61
McGuigan, H., [Peptone hypoglycemia] (39) 149, [Blood sugar] (91) 1198
McGuigan, H. T., [Cesarean section] 1823
Macht, D. I., [Renal colic] (80) 151, [Musterole poisoning] *901
McKenna, H., [Bones and joints] *891
MacKenty, J. E., [Laryngectomy] *863
McKesson, E. I., [Lung complications following anesthesia] 1647
McKinnie, L. H., [Cesarean section] 1561
Mackinnon, D. L., [Carriers of entameba histolytica] (6) 672
Macklin, C. C., [Studies in calcification] (53) 490
McLachlin, L. C., [Action of epinephrin] (74) 1738
McLean, C. C., [Liquid air and electrolytic oxygen] 1647
McLean, E. H., [Sporotrichosis] *1774
McLean, F. C., [Nephritis] *437, (51) 590
McLean, J., [Cephalin] (21) 238
MacLennan, A., [Rectal crises] (16) 1474
McLester, J. S., [Syphilis and internal medicine] (126) 242, [Arterial hypertension] (14) 1908
McMurtrie, D. C., [Occupational training for cripple] 1752
McNally, W. D., [Carbon monoxid
Tuttle ... *1586
Tweedy, E. H., [Vaginal (33) 848, 154
Tyler, A. F., [Fracture of ischium] *1421
McPherson, R., [Treatment of eclampsia] 1467
McQuarrie, I., [Nondependence of protein quotient] (75) 1738
Macrygenis, A., [Typhoid meningitis] (40) 1569
McWilliams, H. I., [Vaccine therapy] (58) 150
Magalhães, O., [Mycosis of lungs] (81) 2006
Magni, E., [Treatment of wounds] (73) 1656
Magnini, M., [Cyst in kidney] (72) 246
Magnus, V., [Familial ichthyosis] (137) 500
Maillart, [Poisoning from rhubarb] (68) 1478
Mairet, A., [Shell shock] (62) 1386
Majoli, A., [Pernicious malaria] (66) 2005
Major, R. H., [Bacteriologic production of kidney lesions] (111) 1199
Makins, G. H., [British surgery] (9) 242
Maldonado, I., [Bilharziosis] (44) 1384
Malengreau, F., [Nitrogen minimum ration] (43) 1741
Mallié, H., [Pneumonia] (48) 2074
Manalang, C., [Degeneration of peripheral nerves] (73) 1912
Mandel, M., [Work in base hospitals] *637, [Trench fever] *725, [Mustard gas] *1970
Manfredi, L., [Cholesterol in culture mediums] (74) 1479
Manges, M., [Pulsating spleen] (16) 312
Manges, W. F., [X-rays in pulmonary tuberculosis] (164) 192
Manheimer, W. A., [Paper caps] *2034
Manier, J. O., [Non-specific measures in infections] (132) 852
Manine, [Spirochetosis] (59) 1742
Manley, O. T., [Transplantation of thymus] (50) 1910
Mann, F. C., [Shock during anesthesia] *371, [Vascular reflexes] 405, [Pulmonary embolism] (57) 1110, [Action of epinephrin] (74) 1738
Mannheimer, G., [Hemoptysis] (7) 1826
Manquat, A., [Hot foods and dyspepsia] (54) 1476
Mansfield, C. M., [Muscular tissue] (87) 1198, [Glycolysis of muscular tissue] (88) 1198
Mansholt, W. H., [Optochin visual disturbances] (76) 598
Manthos, C. T., [Paralysis agitans] (82) 763, [Test for epilepsy] (83) 763
Manwaring, W. H., [Hepatic tissues] *772, (79) 1297, [Foreign protein] (78) 1297
Maragliano, E., [Tuberculosis] (73) 1387
Maragliano, V., [Electrovibrator] (114) 677
Marchand, L., [Rabies] (31) 595, [Nerve blocking in causalgia] (60) 1477, [Diabetic polyneuritis] (50) 1834
Marchoux, E., [Malaria] (16) 1115
Marfan, A. B., [Infection with gastro-enteritis] (52) 412
Marfori, P., [Camphor in cardiovascular disease] (76) 413
Marie, A., [Occupational training] (54) 1205
Marie, P., [Localization of brain centers] (64) 674
Marinacci, S., [Ligation of popliteal artery] (113) 677
Marine, D., [Thyroid and gynecology] 236, (163) 1113, [Prevention of goiter] (49) 1910, [Transplantation of thymus] (50) 1910, [Iodization of proteins] (26) 2069
Markoff, N. V., [Ether-oil anesthesia] (75) 857
Marks, H. K., [Virilism] (68) 592
Marotte, H., [Secondary pleurisy] (46) 854
Marquez, [Peripheral ectasia] (100) 415
Marrable, H. T., [Tuberculosis] (47) 673
[Tuberculosis and military
Villaret, (41) 854, [Intestinal
(66) service (45)
Martelli, C., [Liver-myocardium ascitic syndrome] (59) 761
Martin, A.-P., [Renal lithiasis] (80) 76, (102) 415, [Hematuria with renal calculi] (98) 1121, [Kidney calculi] (66) 1571
Martin, C. J., [Barcoo rot] (16) 1301
Martin, E., [Textbooks on military medicine] 388
Martin, E. K., [Projectile fracture] (8) 1740, (5) 2151
Martin, F. A., [Gangrenous balanitis] (72) 1472
Martin, H. H., [Cholecystectomy vs. cholecystotomy] 1468
Martin, J., [Tuberculosis] 2114
Martin, J. H., [Rupture of uterus] (10) 2003
Martin, P., [Asphyxiating gases] (61) 1478
Marvel, E., [Interruption of pregnancy] 1467
Masei, B., [Rolling the head] (49) 855
Masmonteil, F., [Reduction of fractures] (13) 74, [Inability to rotate forearm] (60) 1037, [Sugar in septicemia] (51) 2151
Masnata, G., [Factitious affections] (79) 157, [Paraffin film] (46) 596
Mason, E. H., [Estimation of chlorids] (51) 311
Massalongo, R., [Inherited ataxia] (93) 497
Masserini, P., [Roentgen examination after wounds] (59) 73
Massini, J. C. L., [Ptosis of mamma] (119) 499
Mathers, G., [Respiratory infections] (66) 150, [Immune reactions with poliomyelitic cocci] (34) 1030, [Meningitis] *1778
Mathieu, A., [Palpation of pylorus region] (38) 155
Mathieu, P., [Wounds of skull] (56) 321
Matignon, J. J., [Pioneers in hygiene] (59) 1477
Matlack, J. A., [Roentgen diagnosis of lesions of esophagus] 1561
Matronola, G., [Paraffin film treatment] (46) 596
Matsunami, T., [Spinal fluid in poliomyelitis] (9) 2068
Matsuoka, Y., [Worm infection of appendix] (23) 944
Matthews, J. R., [Carriers of entameba histolytica] (6) 672, [Intestinal protozoa] (5) 1299
Matthiasson, S., [Helminths and appendicitis] (80) 1573
Mauban, [Malaria] (29) 2211
Mauclaire, P., [Wounds of nerve] (89) 675
Maurel, E., [Excess of boy babies] (13) 594, [Declining birth rate] (38) 1568
Maury, J. M., [Hematogenous unilateral infection of kidney] (113) 408
Mauté, A., [Treatment of typhoid] (27) 594
Maver, M. E., [Lactic acid in urine] (45) 1649
Maxwell, E. S., [Pellagra] *2026
May, E. S., [Posterior lobe of pituitary body] (68) 315
Mayer, A. G., [Death from high temperature] (13) 2147
Mayer, C. P., [Lymphocytosis in syphilitics] (96) 1121
Mayer, E. E., [Traumatic neuroses] *958
Mayer, L., [Orthopedic reconstruction hospital] *1522, [Operations on hand] *2107
Mayo, C. H., [Jejunostomy] 1824, [Enterostomy] (26) 1998, [Exstrophy of bladder] *2079
Mayo, W. J., [Sigmoidotomy] (34) 313, [Diverticulitis] *781, [Gastric surgery] 1540
Mayo-Robison, A. W., [Drainage of knee] (9) 1740
Mazzini, E., [Rupture of uterus] (95) 1658
Meakins, J. C., [Dysentery carriers] (14) 2151
Means, J. H., [Goiter] *33, [Caffein and respiration] (80) 1297
Measham, J. E., [Bronchopneumonia] (34) 154
Medina, A. J., [Gastric sarcoma] (93) 150
1201
ation of
Mejia, B., [Epidural injections in polyneuritis] (110) 499, [Enuresis] (112) 499, [Phlebitis of inferior vena cava] (59) 597, [Reflex therapy] (122) 678
Mejia, F. A. U., [Primum non nocere] (58) 597
Melick, C. C., [Typhoid through vegetables (70) 150
Meltzer, S. J., [Oxygen insufflation] *1150
Mendel, L. B., [Urinary calculi] *32, [Vitamins] (57) 314, [Calcium and magnesium metabolism] (65) 850
Menon, T. K., [Plague] (19) 2072
Menshikoff, V. K., [Cheese in infant feeding] (87) 1479
Menten, M. L., [Action of epinephrin on blood] (9) 1291
Merian, L., [Diseases of nails] (47) 2212
Mériel. [Elephantiasic edema] (22) 594
Merklen, P., [Intestinal preoccupations] (42) 854, [Goiter] (33) 1653, [Liver-kidney insufficiency] (56) 2004
Merola, L., [Access to space below diaphragm] (94) 1120
Merritt, E. P., [Exostoses of os calcis] *118
Meshtchersky, V. A., [Ether-oil anesthesia] (75) 857
Mesureur, [Tuberculous soldiers] (43) 411
Metz, L. M., [Fracture of femur] (96) 1480
Meulengracht, E., [Lipemia in rabbits] (83) 1306
Meyer, A., [Teaching of psychiatry] *861
Meyer, J., [Hunger and appetite in fever] (13) 1294
Meyer, K. A., [Heat stroke] (10) 1469
Meyer, K. F., [Bacillus abortus bovinus] (1) 1028
Meyer, W., [Rectangular flap incision] *1677
Meyers, S. J., [Rheumatism] (119) 71
Michael, M., [Vaccination against chickenpox] (13) 1562
Michaux, J., [Tin in furunculosis] (32) 1653
Michel, C., [Sprue] (10) 754
Mignot, R., [General paralysis] (48) 1303
Mikhailoff, N. A., [Enuresis] (104) 2077
Milani, E., [Phototherapy and radiotherapy] (77) 1387
Milian, G., [Eruptions under salvarsan] (26) 1116, [Mercurial anuria] (56) 1385
Miller, A. H., [Blood pressure during anesthesia] 403
Miller, C. J., [Radium in uterine hemorrhage] 144, 2066
Miller, D. J. M., [Meningococcus meningitis] 235
Miller, J. L., [Vaccine therapy] *765
Miller, T. P., [Hay fever] (138) 165
Milliken, S. M., [Erysipelas] (7) 847
Minelli, S., [Camp typhoid] (42) 596
Minet, J., [Silent peritonitis] (48) 1476
Mingazzini, E., [Oculocardiac reflex] (66) 1834
Mingazzini, G., [Lumbar puncture in headache] (65) 761
Miniot, H., [Electrolysis and wounds] (54) 244
Minor, C. L., [Artificial pneumothorax] (27) 2147
Minot, A. S., [Creatinuria] (93) 1198
Minot, G. R., [Anemia] (46) 2148
Mintz, S. G., [Diagnosis of heart disease] (112) 1660
Mitchell, A. B., [Injuries to skull] (2) 852
Mitchell, A. G., [Phenolsulphonephthalein elimination] (2) 1028
Mitchell, A. P., [Tuberculosis of tonsils] (24) 944
Mitchell, C. W., [Succinate and isolated intestine] (68) 240
Mitchell, E. R., [Women physicians and war] 1023
Mitra, G. C., [Hemolysis] (11)
Mixter, W. J., [Fractures of *773
(19) mushroom

di Sant' Agnes, V. A., [Mastitis] (62) 761
de Sard, J., [Surgery of genitalia] (31) 2152
Sargent, J. C., [Venereal diseases] 1290
A., [Wounds of larynx] 22) 317
ouy, [Suprarenals in malaria] (55) 1915
Saski, Y., [Inosite] (86) 77
Satre, A., [Postoperative albuminuria] (44) 244, [Preservatives in foods] (44) 1476
Satterlee, G. R., [Intestinal toxemia] *1414
Savage, W. E., [Treatment of tuberculosis] (116) 152
Savariaud, M., [Mask for anesthetics] (45) 2004
Saviozzi, V., [Cystic disease of suprarenals] (54) 597
Schenck, P. S., [Typhoid] *1402
Schiassi, B., [Fracture of femur] (61) 1834, (71) 1916
Schiøtz, C., [Chorea] (115) 1746
Schiøtz, I., [Optochin amblyopia] (110) 500
Schlittler, E., [Ear disease] (70) 413
Schmidt, C. L. A., [Posterior lobe of pituitary body] (68) 315, [Tethelin] (69) 315
Schmidt, H. B., [Pituitary injections] (66) 69
Schmidt, V., [Alimentary glycosuria] (97) 248
Schmitz, H., [Roll of honor] 583
Schneider, F., Jr., [Public health] 2143
Schöbl, O., [Cholera carriers] (93) 1565
Schønfelder, T., [Anaphylatic phenomena after antitoxin] (138) 500
Schoondermark, A., [Meningitis] (114) 2078
Schoonmaker, H., [Hydrotherapy of heart disease] (118) 1381
Schou, H. I., [Morbidity under prohibition] (119) 416
Schoute, D., [History of modern hospital] (92) 1208
Schulsinger, S., [Coagulating power of blood] (72) 157
Schultz, O. T., [Water-bath] *1521
Schupfer, F., [Hemorrhagic purpura] (68) 1119
Schurmeier, H. L., [Physical effects of flying] 584
Schwartz, A., [Abdominal wounds] (57) 156, [Knee wounds] (39) 1833
Schwartz, B., [Trichinosis] *884
Schwartz, L., [Dermographism in diagnosis] (88) 497
Schwartze, E. W., [Sodium citrate] (67) 240, [Succinate and isolated intestine] (68) 240
de Schweinitz, G. E., [Removal of cerebrospinal fluid] (67) 592
Schwensen, C., [Heart block] (101) 248
Scott, F. H., [Factors influencing interchange of fluid] (4, 5) 1735
Scott, J. R., [Isolation of B. cuniculicida] (110) 1199, [Bacteriology of fly] (109) 1199
Scott, N. S., [Dilatation of uterus] 1377, (6) 1998
Scott, R. W., [Salicylates] (64) 69, [Salicyl edema] (29) 1196, [Carbon dioxid acidosis] (10) 1294
Scully, F. J., [Foreign protein] *20, [Psoriasis] *1684
Seabury, F. P., [Chancroid] *1217
Secor, W. L., [White operating room] (97) 1112
Sedgwick, J. P., [Uric acid in blood in new-born] 147, (3) 588, [Infant feeding] *417
egura, G., [Retention of bile] (80) 1207
Sencert, L., [Wounds of vessels] (43) 1654
échal, M., [Ring for shattered bones] (51) 1834
nez, [Vaccine therapy of typhoid] (56) 1742
nftner, H. F., [Typhus] *98
rafina, G., [Rat sarcomas] (77) 2005
M. Y., [Nervous-psychic lition in gassed] (114) 2007
Booi [illegible] grafting] (63) 321, *696
Boothby, W. M., [Thyroid [illegible] tion] (32) 2070
Bordier, H., [Radiotherapy for wounds of nerves] (47) 1204
Sharpe, N., [Paresis] *23
Sharpe, W., [Spastic paralysis] *1056
Shattuck, H. F., [Protein intoxication] (20) 848
Shaw, H. L. K., [Poliomyelitis] *167, [Drafting physicians] 1193
Shearer, C., [Spinal fluid and meningococcus] (32) 2073
Sheill, S., [Pneumonia in puerperium] (33) 154
Shepheard, S., [Entameba carriers] (17) 1383
Sherman, H. M., [Cleft palate] *1966
Sherman, W. O., [Carrel's method] *185
Sherrill, J. G., [Traumatic asphyxia] (114) 408
Shibkoff, A. I., [Scurvy] (105) 415
Shie, M. D., [Industrial wound infections] *1927
Shionoya, F., [Lipoid products from degeneration of nerves] (81) 1835
Shore, C. A., [Vaccines and serums] 2143
Shore, T. H. G., [Purulent bronchitis] (51) 494
Short, A. R., [Brilliant green paste] (2) 1830
Shortell, J. H., [Normal beef serum in wounds] (16) 1827
Shupe, T. P., [Renal tuberculosis] (115) 1829
Sicard, J. A., [Paralysis of cranial nerves] (55) 1385, [Skull defect] (60) 2075
Sicard, M. H., [Asthma] (8) 67
Siccardi, P. D., [Hemorrhagic spirochetosis] (47) 855
Sieber, P. R., [Dosage of tuberculin] (13) 1029
Siler, J. F., [Pellagra] (23) 848
Silliman, J. C., [Roll of honor] 1024
Simmonds, N., [Pellagra] (43) 1649, (85) 2,000
Simmons, R. R., [Anatomic changes in nerve cells] (49) 490
Simon, H. T., [Leukemia] *2168
Simonds, J. P., [Fat embolism] *883
Simpson, C. A., [Dermatitis] *95
Sinclair, C. G., [Hookworm] *431
Singer, J. J., [Roentgen illuminator] *1520
Sisson, W. R., [Pathogenic sporotrichum in arthritis] (47) 490
Skillern, R. H., [Sinusitis in infants] *895
Skoog, A. L., [Spinal fluid pressure] *1064
Skversky, A., [Carcinoma of spine] (70) 592
Slack, F. H., [Bacteriology of foods] 60
Slattery, R. V., [Inguinal hernia] (14) 1567
Slemons, J. M., [Blood pressure in obstetrics] *778, [Uric acid in blood] (44) 1649
Sloan, H. G., [Exophthalmic goiter] 1908
Slye, M., [Cancer of stomach] (61) 941
Small, C. P., [Equilibrium tests] *1078
Smeeton, M. A., [Organism isolated from water] (40) 670 [Virulence of diphtheria bacilli] (28) 1030
Smiley, O., [Anal speculum] *121
Smillie, W. G., [Anaerobic methods] (60) 239
Smith, A. J., [Handicapped children] *2093
Smith, A. M., [Carriers of entameba histolytica] (6) 672, [Intestinal protozoa] (5) 1299
Smith, C. A., [Bakers' yeast] *1243
Smith, C. E., [Bruck's serochemical test] (48) 1110, [Emanuel-Cutting mastiche test] (29) 1649
Smith, G., [Bladder disturbances] *1323
Smith, J. W., Jr., [Paresis] *23, [Wassermann tests] (26) 1030
Smith, L. D., [Leukorrhea] *1418
Smith, M., [Malaria] 2208
Smith, M. K., [Acute appendicitis] (3) 1469
Smith-Petersen, M. N., [Approach to hip joint] (15) 670
Smith-Shand, A. K., [Markings mistaken for fracture] (7) 2151
Smyth, H. F., [Grading milk] *1772
Snell, A. M. [Factors influencing interchange of fluid] (5) [illegible]
Sneyd, G. C., [Suct
Bunts, F. E., [Fractures of skull] (54) 68
Burge, E. L., [Catalase content of liver] (9) 589
Sokolow, P., [Mercury quartz light] (57) 245
Solari, E. F., [Anthrax] (98) 1658
Sollier, P., [Motor reeducation] (54) 1655
Sollmann, T., [Therapeutic evidence] *198, [Endermic reactions] (68) 942, [Oiled gauze] *1073
Solomon, H. C., [Bruck's serochemical test] (48) 1110
Soltau, A. B., [Wounds of chest] (36) 1384
Somerville, W. G., [Traumatic hysteria] (165) 493
Sommerfelt, L., [Poliomyelitis with ulnar paralysis] (95) 763, [Sarcoma] (82) 1306
Soparker, M. B., [Vitality of tubercle bacillus] (5) 409
Soper, H. W., [Chronic constipation] *1511
Sordelli, A., [Toxicity of normal beef serum] (8) 323
Sorel, E., [Nephritis in troops] (72) 496
Soresi, A. L., [Anastomosis of ureter stumps] (63) 1037
Sotiriades, [Malaria] (110) 1659
Soubeyran, P., [Inguinal hernia] (50) 1655
Southworth, T. S., [Maternal nursing] 235, [Fat incapacity] *516
Soutter, R., [Fracture reduction] *2035
Sowder, C., [Diseases of gallbladder] 1468
Spalding, A. B., [Cesarean scars] *1847
Speed, K., [Gunshot wounds] *1079, [War surgery] *1343
Spehl, P., [Poisoning from asphyxiating gases] (28) 1203
Spiller, W. G., [Removal of cerebrospinal fluid] (67) 592
Spinner, J. R., [Suicides from poison] (106) 676, [Nitrobenzol] (54) 2155
Spivak, C. D., [Gastro-intestinal disorders in tuberculosis] 1467
Spordelli, A., [Serodiagnosis of syphilis] (78) 949
Sprunt, T. P., [Pernicious anemia] *1919
Stähelin, R., [Diabetes] (55) 2155
Stähli, J., [Labyrinthine ophthalmostatics] (103) 676
Standard Emulsion Company, [Russell Emulsion] 751
Stanton, E. M., [Surgical end-results] *2166
von Stapelmohr, S., [Cresol gangrene] (100) 248, [Phlegmonous gastritis] (94) 1390
Stark, J. R., [Tuberculous endocarditis] (73) 315
Starr, F. N. G., [Inguinal hernia] (41) 1296
Starr, F. W., [Roll of honor] 583
Stefani, J., [Stylophone vibrator] (78) 675
Stehle, R. L., [Hydrochloric acid and mineral excretion] (69) 850
Steiger, O., [Poisoning from silver salts] (71) 1656
Stein, A., [Skull injury at birth] *334
Stein, I. F., [Blood lancet] *383
Stein, O. J., [Sudden deafness] *706
Steinbugler, W. F. C., [Metastatic eye infections] *194
Stephene, J. W. W., [Treatment of malaria] (7, 8) 672, (2-4) 1299
Sterne, A. E., [Central nerve syphilis] 1907
Stévenin, H., [Diphtheria and pseudodiphtheria] (31) 1653
Stevens, W. E., [Phlorizin test] *1865
Stewart, D. H., [Fallopian tube and intestinal stasis] 1378
Stewart, F. C., [Isolation of tubercle bacillus] (52) 2149
Stewart, G. N., [Liberation of epinephrin] (84, 85) 315, [Diabetes] (11) 406, [Blood flow and liberation of epinephrin] (7) 1294, [Liberation of epinephrin] (31, 32) 1909, [Epinephrin secretion] (12) 2147
Stheeman, H. A., [Spasmophilia] (86) 323
Stieglitz, J., [Shortage of drugs] 400
Stiell, W. F., [Chronic aspirinism] (35) 1383
Stillians, A. W., [Bruck [illegible] diseases]
almer, W. [illegible], [Acidos
Castex, M. R., [Pulmonary syphilis] (88) 158
Casto, T. D., [Nitrous oxid-oxygen anesthesia]
Stoddard, J. L., [Spirochetes in urine] (3) 1566
Stokes, J. H., [Syringadenoma] (36) 1564, [Treatment of syphilis] 1907
Stone, F. L., [Leukorrhea] *1418
Stone, H. B., [Urethrorectal fistula] (57) 491, [Toxicity of intestinal secretion] (35) 1909
Stone, R. E., [Bone development] (27) 849
Stone, W. B., [Vaccine therapy] (115) 851
Stoner, W. C., [Nonsyphilitic aortitis] 1908
Stopford, J. S. B., [Thermalgia] (19) 1033
Stradiotti, G., [Autogenous vaccines] (87) 1658
Strauss, A. E., [Auricular flutter] (33) 1196
Strauss, I., [Sciatica] *2032
Strickler, A., ["Gel" test] (37) 1564
Strohl, A., [Record of reflexes] (69) 674
Sturgis, M. G., [Atypical thyroid disease] (130) 1299
Suarez, M. R., [Ichthyolized petrolatum] (86) 1479
Surraco, L. A., [Pyelotomy] (72) 2156
Suter, F., [Nephrolithiasis in Switzerland] (37) 595, [Prostatectomy] (54) 1834
Sutherland, W. D., [Hemolysis] (11) 409
Sutton, A. C., [Bacteremia in pneumonia] (21) 1648
Sutton, R. L., [Frostbite and cancer] *2171
Sweany, H. C., [Wassermann and luetin reactions] (29) 2147
Sweek, W. O., [Liquid agar-agar] *467
Sweet, J. E., [Dichloramin-T] *27, *1076
Sweetnam, H. W., [Retrodisplacements] (2) 943
Sweitzer, S. E., [Skin cancer] *179
Swett, P. P., [Ununited fractures] (24) 312, [Hypertension] (18) 1109
Swift, H. F., [Syphilis of nervous system] (21) 589, *2092
Syme, W. S., [Bronchoscopy in asthma] (18) 493
Symmers, D., [Hodgkin's disease] (61) 69, [Metastasis of tumors] (16) 754, [X-ray in status lymphaticus] 2204, [Status lymphaticus] (4) 2208
Symonds, C. P., [Premeningitic rash] (61) 674
Syms, P., [Cancer of breast] *454

T

Talbot, F. B., [Metabolism of infants] 146, [Normal metabolism] (2) 311
Tanton, J., [Resection of hip] (34) 1914
Tapie, J., [Ruptures of heart] (50) 1915
Tassone, U., [French foot] (47) 596
Taulbee, W. R., [Celiohysterectomy] 2144
Taussig, F. J., [Vulvar carcinoma] 145, (11) 1998, [Umbilical cord] *1963
Taylor, A. E., [Diet of prisoners] *1575
Taylor, E., [Neutralization of virus of poliomyelitis] (174) 1113, [Carriage of virus of poliomyelitis] (40) 1909
Taylor, F., [Combined vaccination] (5) 1473
Taylor, F. B., [Effect of temperature on rhythm of excised segments of intestine] (7) 1735, [Purged intestine] (29) 2069
Taylor, F. E., [Arneth's count in tuberculosis] (16) 673
Taylor, H. L., [Bone lesions] *1227
Taylor, K., [Treatment of wounds] *381, [Bacteria within sequestrums] (20) 1998, [Antiseptics] (25) 2152
N. B., [Wound treatm
Peterson
Clark, J. G., [Radium in uterine hemorrhage] 145, [Pelvic lesions] (114) 241, [Nephropexy] (35) 1736
Clark, J. T., [Address] 1439
Clark, W. I., Jr., [Health in war] *1124

Teissier, J., [Trench albuminuria] (12) 594
Telmon, H., [Wassermann test] (32) 946
Tenani, O., [Hernia of brain] (61) 75
ten Doesschate, G., [Diathermy for gonorrheal ophthalmia] (88) 1389
Tennant, C. E., [Perforation of abdominal viscera] 1561
Tenner, A. S., [Trachoma] 227
Terada, M., [Myositis] *2101
Terrell, E. H., [Hemorrhoids] *1509
de los Terreros, C. S., [Dosage for children] (73) 1305
Terrien, F., [Ophthalmology] (37) 1914, [Artificial eyes] (38) 1914
Terry, C. E., [Public health] 2143
Terson, A., [Signs of death] (41) 1035, (65) 1478
Testoni, G., [Pentose in urine] (58) 75
Thalhimer, W., [Streptobacillus from urine] (36) 1030, [Cancer of stomach] (27) 1736
Thaysen, T. E. H., [Habitual constipation] (89) 1836
Thoburn, T. W., [Salicylates] (64) 69
Thom, D. A., [Brain lesion in epilepsy] (23) 2209
Thomas, B. A., [Kidney tests] *1747
Thomas, H. B., [Arthritis] *770
Thomas, J. J., [Lenticular degeneration] (20) 2209
Thomas, T. T., [Excising head of humerus] (37) 1736, [Brachial paralysis] (22) 1998
Thompson, H. E., [Brain tumor] (54) 1738
Thompson, L., [Complement fixation in syphilis] (22) 589
Thomson, A., [Arthroplasty] (10) 1301
Thomson, D., [Culture medium for gonococcus] (19) 493
Thornton, L. H. D., [Acriflavine, proflavine and brilliant green] (20) 673
Thury, A., [Iodin urine reaction] (59) 1206
Tissier, [Syphilis and masculinity] (24) 1301
Tobler, W., [Influenza meningitis] (52) 760
Tockmann, [Mumps meningitis] (19) 594
Tomlinson, P. W., [Fraternity and cooperation] 1734
Tornaghi, E., [Polyneuritis] (79) 323
Torres, C., [Diet and urine in children] (4) 1825
Torres, O., [Destructive lieshmaniosis] (103) 498
Toupet, J., [Murmurs with aortic incompetency] (41) 1303
Tournay, A., [Pupil reactions] (38) 244
Tousey, S., [Roentgenographic location of bullets] *1521
Tracy, E. A., [Bárány's sign] (87) 70, [Vasomotor reflexes] (9) 2209
Trask, J. W., [Climate and consumptive] 65
Trémolières, F., [Murmurs with aortic incompetency] (41) 1303
Trétiakoff, [Adenosarcoma] (28) 72, [Meningocele] (34) 1204
Triboulet, H., [Belgian and French physicians] 2063
Trocello, E., [Ether in aphonia and mutism] (81) 1039
Troell, A., [Chlorinated soda in suppuration] (99) 78, [Fracture of leg] (84) 858
Trudeau, F. B., [Plattsburgh examination] *2110
Tryon, G., [Epidemic of dysentery] (19) 940
Tsudji, M., [Cleavage of tyrosin by bacteria] (89) 77
Tsurumi, M., [Immune state in mice] (58) 941
Tucker, B. G., [Epidemiology of pellagra] (58) 591
Tuckwell, D. G., [Hospital accommodation for rural sick] (45) 1296
Tuffier, T., [Suppuration in pleura] (72) 675
Tunnicliff, R., [Meningococci] *786
Turner, C. E., [Nitrous oxid-ogygen analgesia] 1734
Turner, G. G., [Splenectomy] (26) 154
Turner, P., [Trench feet] (16) 1913
Turtur, G., [Lingual tonsil] (90) 497
Tutle, H. K., [Pellagra] *2105
Tweedy, E. H., [Vaginal plug] (19) 154
Tyler, A. F., [Fracture of ischium] *1421

U

Udaondo, C. B., [Gastric cancer] (82) 323, [Hematemesis] (84) 414, [Dissolved albumin in stomach] (70) 949
Uemura, H., [Coagulo reaction of syphilitic serum] (8) 1469
Ulrich, H., [Treatment of poliomyelitis] (31) 407
Underhill, F. P., [Pellagra-like condition in dogs] (7) 589
Unger, L. J., [Rickets] *1583, [Transfusion] *2159
Urra, F. M., [Lipoids] (92) 247
Urrutia, L., [Peptic ulcers] (132) 678, [Pyloric stenosis] (21) 2211
Uthelm, K., [Venous murmur] (93) 764
Utley, F. B., [Blood counts] (84) 2071

V

Valassopoulo, [Icterohemorrhagic spirochetosis] (38) 1653
Valk, W., [Uremia in cholera] (95) 247
Vallet, E., [Focusing sunlight to cure warts] (44) 320
Valobra, I., [Nervous disturbances after wounds] (76) 1387
Valtancoli, G., [Scoliosis] (75) 1656
Vance, C. A., [Extrauterine pregnancy] 2144
Van de Kasteele, R. P., [Tuberculin] (110) 2078
van der Brugh, J. P., [Chronic headache] (93) 1208
van der Hoeve, J., [Optochin visual disturbances] (76) 598
Vanderhoof, D., [Dilated duodenum] *510
Van der Veer, E. A., [Sarcoma of small intestine] (147) 316, [Cancer of cervix] (7) 1998
Vanghetti, G., [Prosthetic surgery] (61) 321
Van Hook, W., [Retaining floor of orbit] *1140
Van Leeuwen, W. S., [Drugs] (111) 2078
Vannutelli, F., [Infectious purpura] (110) 677
van Ree, A., [Roentgenotherapy of tuberculosis] (81) 1917
van Rijnberk, G., [Infant welfare] (93) 77, [Muscle tonus] (127) 499, [Unrestricted practice] (76) 1572, [Do animals feel pain?] (108) 1745, (83) 1835
van Saun, A. I., [Wassermann reaction] (54) 1910
Van Slyke, D. D., [Acidosis] (50, 51) 149
van Vliet, J. C., [Arthritis of knee] (100) 2158
van Voornveld, [Pneumothorax in tuberculosis in pregnant] (58) 245
Vaquez, H., [Hypertrophy of heart] (39) 518, [Disordered action of heart] (36) 2073, [Strophanthus] (22) 2152
Vargas, M., [Appendicectomy, in newborn] (32) 1204
Varsi, T., [Protecting salve] (92) 414
Vastellani, A., [Combined vaccination] (5) 1473
Vaughan, J. W., [Cancer] *1952
Vaughan, V. C., [Ointments of iodin] 1817
Veber, T. K., [Retrograde catheterization] (141) 679
Verain, L., [Device to protect ear] (15) 1115
Verain, M., [Device to protect ear] (15) 1115
Verdozzi, C., [Unusual manifestation of syphilis] (74) 1387
Verhoeff, F. H., [Ink infiltration] *1420
Verning, P., [Roentgen treatment of goiter] (92) 1390
Vernoni, G., [Serum anaphylaxis] (66) 948, [Tetanus] (78) 1657
Verrall, P. J., [Supination by plaster] (21) 853
Viets, H., [Shell shock] *1779
Vignolo-Lutati, C., [Tabetic pruritus] (89) 497, [Uric acid sycosis] (52) 596
Villa, E., [Loss of teeth and military service] (57) 761
Villa, G. T., [Intestinal parasites] (114) 499
Villandre, C., [Radiography of skull] (53) 156, [Graft to close gap in skull] (45) 320
Villapadierna, E. M., [Gonococcus in periosteum] (75) 949
Villaret, M., [Flexion of big toe] (66) 1656
de la Villéon, E. P., [Projectiles in lungs] (47) 320
Vincent, A., [Asepsis of wounds] (63) 239
Vincent, E., [Gas gangrene] (83) 675
Vincent, H., [First dressing] (33) 2153
Vincent, S., [Suprarenal bodies and genital system] 236, (166) 1113
Voegtlin, C., [Parathyroids] 236, (160) 1113
Vogt, A., [Crystalline lens] (60) 1916
Volvenel, P., [Asphyxiating gases] (61) 1478
Volkoff, A. D., [Digestion after gastro-enterostomy] (84) 76
Von Adelung, E., [Roll of honor] 843, [Poison-oak] 1023, [Gas embolism] *1522
Voorhoeve, N., [Roentgenograms showing calculi] (112) 415, [Familial blue sclerotics] (89) 763, [Horseshoe kidney] (34) 1833

W

Waddell, J. A., [Action of alypin] (73) 1738
Waddell, W., [Emetin bismuth iodid in dysentery] (57) 674
Wagner, [Suprarenal dyspepsia] (40) 947, (55) 1651
Wahl, H. R., [Titrations of diphtheria toxins] (25) 1030
Walker, E. L., [Myositis purulenta tropica] (35) 1030
Walker, I. C., [Bronchial asthma] *363, (51) 190, (106) 1199
Wallace, C., [British surgery at front] (1) 153
Wallau, C., [Puncture of corpus callosum] (120) 677
Waller, E., [Cyst in bile duct] (80) 598
Wallis, B. P., [Meningococcus carriers] (4) 1652
Wallis, R. L. M., [Bacteriologic media] (16) 409
Walters, A. L., [Ipecac alkaloids] (86) 315, (82) 1297, (28) 2069
Wang, C. K., [Bovine tuberculosis] (19) 944
Wang, S. L., [Bacilli in breast milk] *531, [Hemoptysis] (7) 1826
Wani, H., [Spirochaeta icterohemorrhagiae] (53) 1110
Wannamaker, T. E., Jr., [Home hospital unit] 228
Ward, G. G., Jr., [Vesicovaginal fistulas] (104) 593
Ward, H. C., [Coccobacillus ozenae] (47) 1380
Wardall, R. A., [Foods for diabetic] *1859
Warfield, L. M., [High blood pressure] (19) 1029, [Arteriosclerosis] (66) 2149
Warthin, A. S., [Syphilis of pulmonary artery] (9) 1908
Watabiki, T., [Polychrome stain] (139) 679
Watkins, W. W., [X-ray diagnosis of lung syphilis] (17) 1908
Watson, E. A., [Extreme fecal impaction] 283
Watson, H., [Emetin bismuth iodid in dysentery] (57) 674
Watson, J. W., [Anaphylactic reactions] (14) 1826
Watson, L. F., [Local anesthesia] 1734
Wayson, N. E., [Vaccines in war] *267
Webb, C. H. S., [Brilliant green] (20) 493
Webb, R. C., [Hour glass stomach] (26) 1736
Weil, P. E., [Typhoid osteoperiostitis] (45) 1303
Weil, R., [Antigen and antibody] (61) 150, [Excretion of dyes] *521, [Anaphylaxis] (41) 1910
Weill, E., [Cornmeal] (69) 157, [Deficiency] (57) 1915
Weisenburg, T. H., [Vertigo] *809
Weiskotten, H. G., [Burns and suprarenals] *776
Weisman, C., [Gas-heated appliances] 586
Weiss, H. B., [Mercury poisoning] (98) 1032
Weiss, R. S., [*Epidermophyton* infecfection] *1059
Wekesser, H. P., [Blood transfusion] *2182
Welch, W. H., [Carrel-Dakin treatment] 1994
Wells, H. G., [Cancer of stomach] (61) 941, [Alcohol and reproductive tissues] (54) 2149
Wells, S. R., [Electrocardiographic sign of myocardial change] (8) 1201
Wende, G. W., [Venereal diseases] *1080
Wentworth, J. A., [Vital capacity of lungs] (35) 1196, [Metabolism in cardiac disease] (36) 1196
Werder, X. O., [Recurrences in cancer] 1166, (8) 1998
West, F. O., [Urines of picric acid workers] (22) 755
West, H. F., [Absorption of phenolsulphonephthalein] (42) 1737
Whipple, A. C., [Forearm fractures] (119) 241
Widakowich, V., [*Balantidium coli*] (82) 1179, [Helminthiasis] (98) 2077
Widal, F., [Typhoid and paratyphoid vaccination] (59) 1386
Wieden, D. J., [Extraction of cataract] (69) 856
Wiener, M., [Keratoconus] *797
Wilcox, H. B., [Drafting physicians] 934
Wilensky, A. O., [Carcinoma of stomach] (27) 1736
Willcox, W. F., [Increase of cancer] (56) 941
Willems, C., [Rigidity of abdominal wall] (42) 2073
Williams, F. E., [Neuroses] 2145
Williams, J. R., [Diabetes] (17) 1029, [Undernutrition] (32) 1196
Williams, J. W., [Uteri removed at cesarean section] (45) 1999
Williams, S. W., [Ambulance driving] 62
Williamson, N. E., [Iso-agglutinin group] 486
Williamson, O. K., [Physical sign in pneumothorax] (48) 494
Willis, A. M., [Cholecystectomy] (24) 1736, *1943
Willius, F. A., [Alpha iodin in heart block] (13) 1469, [Cardiac disease] *2011
Willy, R. G., [Poliomyelitis] *1247
Wilson, H., [Arneth's count in tuberculosis] (16) 673
Wilson, L. B., [Goiter] 1907
Wilson, W. A., [Venarsen] 62
Wimmer, A., [Consciousness during stupor] (98) 248
Windle, J. D., [Digitalis in heart disease] (37) 1384
Winternitz, M. C., [Experimental nephropathy] (77) 151
Wiseman, J. R., [Albuminuria following hexamethylenamin] (19) 754
Wishard, W. N., [Prostatic hypertrophy] 1560
Wishart, D. J. D., [Special interns] 1555
With, C., [Reactions in spinal fluid] (103) 2158
Withers, W. A., [Iron as antidote to cottonseed meal injury] (89) 2000
Woglom, W. H., [Sarcomatous transformation in stroma] (21) 1827
Wohl, M. G., [Obtaining blood serum] (56) 1910
Wolmant, H., [Carrel method] (58) 1037
Wolbach, S. B., [Pathogenic sporotrichum in arthritis] (47) 490
Wolff, L., [Gallstone colic] (99) 248
Wood, F. D., [Masks for facial wounds] (22) 410
Wood, W. A., [Appendicitis] (30) 1034
Woodroffe, H. L. W., [Cranial defects] (3) 852
Woodyatt, R. T., [Shock] *1410
Woolfenden, H. F., [Wounds of knee joint] (17) 1033
Worster-Drought, C., [Pneumococcal meningitis] (17) 1740, [Meningitis] (31) 2073
Wright, A., [Treatment of wounds] 308
Wright, J. H., [Uniform culture media] (37) 670
Wright, L. T., [Schick test] (30) 1030
Wu Lien Teh, [Medicine in China] 250
Wyler, J. S., [Corneal tattooing] 1902
Wynne, H. M. N., [Degeneration of leukocytes] (20) 670

Y

Yakimoff, V. L., [Lambliosis] (145) 679
Yakovenko, V. A., [Ether-oil anesthesia] (75) 857
Yamamoto, N., [Action of blood on vessels] (74) 1572
Yano, K., [Blood in beriberi] (17) 406
Yanovsky, V. L., [Rise in pulse rate] (108) 415
Yawger, N. S., [Nystagmus] *773

Yerkes, R. M., [Psychology and military activities] (79) 1650
Ymaz, L., [Enrichment of bacilli in sputum] (82) 1120
Yorke, W., [Carriers of entameba histolytica] (6) 672, [Malaria] (7, 8) 672, (2-4) 1299, [Microfilaria nocturna] (1) 1299
Yoshikawa, I., [Blood in beriberi] (17) 406
Young, A., [Rubber goods] 62
Young, E. L., Jr., [Lithiasis] *1490
Young, H. H., [Injuries to pancreas] (79) 151, [Urethrorectal fistula] (57) 491, [Cancer of prostate] *1591

Z

Zadek, I., [Congenital clubfoot] *1057
Zannelli, P., [Factitious affections] (79) 157
Zeisler, E. P., [Sarcoma of skin] *111, [Neodiarsenol] *2181
Zeisler, J., [Sarcoma of skin] *111
Zentmayer, W., [Eye and endocrine organs] *1
Zentmire, Z., [Utilization of carbohydrate] (46) 1649
Zingher, A., [Immunization against diphtheria] (30) 1828
Zinsser, H., [Bacterial anaphylaxis] (59) 1111
Zironi, A., [Typhoid serum] (54) 1570
Zugsmith, E., [Chronic colitis] (163) 492
Züllig, J., [Tumors of knee] (62) 2004

INDEX TO PAGES

OF THE JOURNAL, ACCORDING TO WEEKLY ISSUES—VOLUME LXIX, JULY-DECEMBER, 1917

Pages	No.	Date
1- 78—	1	July 7
79- 160—	2	July 14
161- 248—	3	July 21
149- 324—	4	July 28
325- 416—	5	Aug. 4
417- 500—	6	Aug. 11
501- 598—	7	Aug. 18
599- 680—	8	Aug. 25
681- 764—	9	Sept. 1
765- 858—	10	Sept. 8
859- 950—	11	Sept. 15
951-1040—	12	Sept. 22
1041-1122—	13	Sept. 29
1123-1208—	14	Oct. 6
1209-1306—	15	Oct. 13
1307-1390—	16	Oct. 20
1391-1480—	17	Oct. 27
1481-1574—	18	Nov. 3
1575-1660—	19	Nov. 10
1661-1746—	20	Nov. 17
1747-1836—	21	Nov. 24
1837-1918—	22	Dec. 1
1919-2008—	23	Dec. 8
2009-2078—	23	Dec. 15
2079-2158—	25	Dec. 22
2159-2256—	26	Dec. 29